HSD62x

Firmware Version 4.14

IP PTZ Camera with dual H.264

User Manual

TH GROUP SIQURA®

Note: To ensure proper operation, please read this manual thoroughly before using the product and retain the information for future reference.

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AIT55MW10

Brand names

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Although considerable care has been taken to ensure a correct and suitably comprehensive description of all relevant product components, this manual may nonetheless contain errors and inaccuracies. We invite you to offer your suggestions and comments by email via t.writing@tkhsecurity.com. Your feedback will help us to further improve our documentation.

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Contents

1 About this manual

What this manual covers

This manual applies to the HSD62x series, Siqura's IP PTZ camera with dual H.264.
It explains:

- How to communicate with the unit
- How to operate the unit
- How to adjust the unit's settings

For instructions on camera installation and establishing connections, see the separate Quick Start Guide and Installation Manual provided with each HSD62x series model.

Who should read this manual

This manual is intended for technicians and operators involved in the configuration and operation of HSD62x cameras.

What you should already know

Adequate knowledge and skills in the following fields are recommended when working with this product:

- Basic understanding of camera technologies
- CCTV systems and components
- Ethernet network technologies and Internet Protocol (IP)
- Windows environments
- Web browsers
- Video, audio, and contact closure transmissions
- Video compression methods

Before you start

We advise you to read and observe all instructions and warnings in this manual before you continue. Keep this manual with the original bill of sale for future reference and warranty service. When you unpack your product, check for missing or damaged items. If any item is missing, or if damage is evident, do not install or operate this product. Contact your supplier for assistance.

Why specifications may change

At Siqura, we are committed to delivering high-quality products and services. The information given in this manual was current when published. As we continuously seek to improve our products and user experience, all features and specifications are subject to change without notice.

We like to hear from you!

Customer satisfaction is our first priority. We welcome and value your opinion about our products and services. Should you detect errors or inaccuracies in this manual, we would be grateful if you would inform us. We invite you to offer your suggestions and comments via t.writing@tkhsecurity.com. Your feedback helps us to further improve our documentation.

Acknowledgement

Siqura units use the open-source Free Type font-rendering library. The *Open Source Libraries and Licenses* document, available at Siqura, gives a complete overview of open source libraries used by Siqura video encoders and IP cameras.

2 Safety and compliance

This chapter gives the HSD62x safety instructions and compliance information.

In This Chapter

2.1 Safety

The safety information contained in this section, and on other pages of this manual, must be observed whenever this unit is operated, serviced, or repaired. Failure to comply with any precaution, warning, or instruction noted in the manual is in violation of the standards of design, manufacture, and intended use of the module. Siqura assumes no liability for the customer's failure to comply with any of these safety requirements.

Trained personnel

Installation, adjustment, maintenance, and repair of this equipment are to be performed by trained personnel aware of the hazards involved. For correct and safe use of the equipment and in order to keep the equipment in a safe condition, it is essential that both operating and servicing personnel follow standard safety procedures in addition to the safety precautions and warnings specified in this manual, and that this unit be installed in locations accessible to trained service personnel only.

Safety requirements

The equipment described in this manual has been designed and tested according to the **UL/IEC/EN 60950-1** safety requirements. For compliance information, see the EU Declaration of Conformity which is available for download at *http://www.siqura.com/support-files*.

Warning: If there is any doubt regarding the safety of the equipment, do not put it into operation.

This might be the case when the equipment shows physical damage or is stressed beyond tolerable limits (for example, during storage and transportation).

Important: Before opening the equipment, disconnect it from all power sources.

The equipment must be powered by a *SELV*[*] power supply. This is equivalent to a Limited Power source (LPS, see UL/IEC/EN 60950-1 clause 2.5) or a "NEC Class 2" power supply. When this module is operated in extremely elevated temperature conditions, it is possible for internal and external metal surfaces to become extremely hot.

[*] SELV: conforming to IEC 60950-1, <60 Vdc output, output voltage galvanically isolated from mains. All power supplies or power supply cabinets available from Siqura comply with these SELV requirements.

Power source and temperature ratings

Verify that the power source is appropriate before you plug in and operate the unit. Use the unit under conditions where the temperature remains within the range given in the Technical Specifications of this product. You can download the HSD62x datasheet at *www.siqura.com http://www.siqura.com*.

Optical safety

The following optical safety information applies to HSD62x models with SFP interface.

This product complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007. This optical equipment contains Class 1M lasers or LEDs and has been designed and tested to meet **IEC 60825-1:1993+A1+A2** and **IEC 60825-2:2004 safety class 1M** requirements.

Warning: Optical equipment presents potential hazards to testing and servicing personnel, owing to high levels of optical radiation.

When using magnifying optical instruments, avoid looking directly into the output of an operating transmitter or into the end of a fiber connected to an operating transmitter, or there will be a risk of permanent eye damage. Precautions should be taken to prevent exposure to optical radiation when the unit is removed from its enclosure or when the fiber is disconnected from the unit. The optical radiation is invisible to the eye.

Use of controls or adjustments or procedures other than those specified herein may result in hazardous radiation exposure.

The installer is responsible for ensuring that the label depicted below (background: yellow; border and text: black) is present in the restricted locations where this equipment is installed.

EMC

This device has been tested and found to meet the CE regulations relating to EMC and complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation. These limits are designed to provide reasonable protection against interference to radio communications in any installation. The equipment generates, uses, and can radiate radio frequency energy; improper use or special circumstances may cause interference to other equipment or a performance decrease due to interference radiated by other equipment. In such cases, the user will have to take appropriate measures to reduce such interactions between this and other equipment.

Any interruption of the shielding inside or outside the equipment could make the equipment more prone to fail EMC requirements.

Non-video signal lines must use appropriate shielded Cat 5 cabling (S-FTP), or at least an equivalent. Ensure that *all* electrically connected components are carefully earthed and protected against surges (high voltage transients caused by switching or lightning).

ESD

Electrostatic discharge (ESD) can damage or destroy electronic components. *Proper precautions should be taken against ESD when opening the equipment.*

Handle the camera carefully

Do not abuse the camera. Avoid bumping and shaking. The camera can be damaged by improper handling or storage.

Do not disassemble the camera

To prevent electric shock, do not remove screws or covers. There are no user serviceable parts inside. Consult technical support if a camera is suspected of malfunctioning.

Do not use strong or abrasive detergents to clean the camera

Use a dry cloth to clean the camera when it is dirty. If the dirt is hard to remove, use a mild detergent and wipe gently. To clean the lens, use lens tissue or a cotton tipped applicator and ethanol. Do *not* clean the lens with strong detergents.

Never face the camera towards the sun

Do not aim the camera at bright objects. Whether the camera is in use or not, never aim it at the sun or other extremely bright objects, as this can damage the camera.

Do not block the cooling vent

This camera has a cooling fan inside. Blocking the cooling holes may lead to overheating and cause malfunction. Overheating is not covered by warranty.

Do not expose indoor models to moisture

The indoor camera model is designed for indoor use or use in locations where it is protected from rain and moisture. Turn the power off immediately if the camera is wet and ask a qualified technician for servicing. Moisture can damage the camera and also create the danger of electric shock.

RoHS statement

Global concerns over the health and environmental risks associated with the use of certain environmentally-sensitive materials in electronic products have led the European Union (EU) to enact the Directive on the Restriction of the use of certain Hazardous Substances (RoHS) (2002/95/EC). Siqura offers products that comply with the EU's RoHS Directive. The full version of the Siqura RoHS statement can be viewed at www.siqura.com.

Product disposal

The unit contains valuable materials which qualify for recycling. In the interest of protecting the natural environment, properly recycling the unit at the end of its service life is imperative.

When processing the printed circuit board, dismantling the lithium battery calls for special attention. This kind of battery, a button cell type, contains so little lithium, that it will never be classified as reactive hazardous waste. It is safe for normal disposal, as required for batteries by your local authority.

2.2 Compliance

The EU Declaration of Conformity for this product is available for download at *http://www.siqura.com/support-files*.

3 Product Description

The HSD62x cameras are networked high-speed PTZ dome cameras designed to deliver superb performance and durability with an intelligent and stylish housing suitable in any security and surveillance installation. This chapter introduces the individual camera models and their features.

In This Chapter

3.1 Models

The HSD62x series provides six IP PTZ camera models with dual H.264.

Siqura HSD620

- Quad stream support: dual H.264, MPEG-2, MPEG-4, and MJPEG
- 26x Optical zoom; 12x digital zoom
- Day/Night, Back Light Compensation, Wide Dynamic Range
- 400°/second preset targeting
- 360° endless panning
- 256 presets; 8 programmable cruises
- 8 alarm in; 1 output
- Two-way audio
- 24 privacy masks
- Analogue output
- Optical output option

Siqura HSD620PRH

- Quad stream support: dual H.264, MPEG-2, MPEG-4, and MJPEG
- 26x Optical zoom/12x digital zoom
- Day/Night with IR-cut filter
- Backlight compensation
- 400°/second preset targeting
- 256 presets/8 programmable cruises
- Compass, azimuth and elevation OSD
- 24 privacy masks
- Pressurised to 7psi; able to hold pressure for up to 1 year
- Low pressure sensor, Shrader and pressure relief valves standard
- IP 67 ingress protection

Siqura HSD621PRH

- Quad stream support: dual H.264, MPEG-2, MPEG-4, and MJPEG
- 35x Optical zoom/12x digital zoom
- Day/Night with IR-cut filter
- Backlight compensation
- 400°/second preset targeting
- 256 presets/8 programmable cruises
- Compass, azimuth and elevation OSD
- 8 privacy masks
- Pressurised to 7psi; able to hold pressure for up to 1 year
- Low pressure sensor, Shrader and pressure relief valves standard
- IP 67 ingress protection

Siqura HSD622

- Quad stream support: dual H.264, MPEG-2, MPEG-4, and MJPEG
- 26x Optical zoom; 12x digital zoom
- Day/Night, Backlight compensation, Wide Dynamic Range
- 400°/second preset targeting
- 360° endless panning
- 256 presets; 8 programmable cruises
- 8 alarm in; 1 output
- Two-way audio
- 24 privacy masks
- Analogue output
- Optical output option

Siqura HSD626

- Quad stream support: dual H.264, MPEG-2, MPEG-4, and MJPEG
- 35x optical zoom; 12x digital zoom
- Day/Night, Backlight compensation, Wide Dynamic Range
- Electronic Image Stabilisation
- 400°/second preset targeting
- 360° endless panning
- 256 presets; 8 programmable cruises
- 8 alarm in; 1 output
- Two-way audio
- 8 Privacy Masks
- Analogue output
- Optical output option

Siqura HSD626EXP

- Quad stream support: dual H.264, MPEG-2, MPEG-4, and MJPEG
- 35x optical zoom; 12x digital zoom
- Day/Night, Backlight compensation, Wide Dynamic Range
- Electronic Image Stabilisation
- 400°/second preset targeting
- 360° endless panning
- 256 presets; 8 programmable cruises
- 8 alarm in; 1 output
- Two-way audio
- 8 Privacy Masks
- Analogue output
- Optical output option
- IP67 Ingress protection
- ATEX approved for gas and dust
- Fan and heater

3.2 Product overview

General

Siqura HSD62x series cameras are high-speed IP PTZ dome cameras with a built-in multicodec and multistreaming video server.

High-speed dome

The HSD62x has a 26x (HSD620/620PRH/622) or 35x (HSD621PRH/626/626EXP) autofocus zoom lens with 12x digital zoom. The lens can move in almost any direction offering a wide view without missing any details. The dome provides variable pan/tilt speeds ranging from a fast patrol of 400° per second to a slow ramble of 0.5° per second with +/- 0.1° pan accuracy for fast and accurate tracking. 360° endless rotation and -10°~190° tilt travel allow for the tracking of objects passing directly underneath the dome. Up to 256 preset points can be programmed for precise location of target areas; users can also define eight sequence routes, four auto pan routes, and eight cruise routes for the camera to operate automatically.

Multicodec and multistreaming

The HSD62x is capable of streaming 2x H.264 at full frame rate. It can also stream 2x MPEG-2, MPEG-4, or MJPEG simultaneously. Each stream is optimised for its purpose: high-quality H.264 or MPEG-2 for live viewing, low-bandwidth MPEG-4 for storage, or easy-to-decode MJPEG for web applications and remote devices.

Up to twenty streams can be retrieved using RTSP. It is also possible to use the Session Announcement Protocol (SAP) to transmit MPEG-2/-4/MJPEG and H.264 streams to multicast destinations. The unit also has a Live View encoder that can convert the video input signal to MJPEG format for streaming to web applications or remote devices using the HTTP pull method.

Using the MX protocol, a total of twelve copies – three per independent MPEG-2/4, MJPEG, or H.264 video stream – can be transmitted to different unicast and/or multicast destinations. The HSD62x supports source-specific multicast (SSM).

Picture enhancement

Almost every analogue camera offers an interlaced signal (PAL or NTSC). On digital computer monitors, this causes severe artefacts, such as comb edges on moving objects. To remove these artefacts the video signal has to be deinterlaced. This can be done in the monitor, but also at the beginning – at the encoder side. The HSD62x is fitted with a motion adaptive deinterlacer (M.A.D.). Siqura's M.A.D removes the interlacing artefacts on the moving objects only to preserve the vertical resolution of the image. In addition, the deinterlaced image is much easier to encode, saving bits for streaming and storage.

Edge recording

The HSD62x offers edge recording when the connection with the NVR is lost. The recorded images are available as AVI and can easily be downloaded from the device. The recordings are stored on a single µSDHC card with a maximum capacity of 32 GB.

ONVIF and Open Streaming Architecture (OSA)

The Siqura HSD62x supports both the international ONVIF standard and Siqura OSA for remote control, configuration, video switching, and streaming. The HSD62x has been approved for ONVIF Profile S for streaming, PTZ, and I/O. Siqura's OSA is a comprehensive HTTP RTSP based API, which gives access (next to ONVIF) to all controls and makes full integration easy.

Video Motion Detection (VMD)

The HSD62x is fitted with a motion detector, which raises an event when a certain amount of motion is detected in a predefined area in the image. The motion detector runs real-time on the live images. The detection itself is based on 'averaged pixel change'. The region of interest (ROI) is obtained by masking the parts of the image of less or no interest, such as trees or a fountain which would otherwise trigger false events. The mask can be drawn freely over the image.

Image quality monitor and tampering alarm

When the image from the camera becomes too poor, an image quality alert is raised. The built-in Image Quality Monitor continuously monitors the camera image on contrast, exposure, sharpness, and noise. In addition, the built-in Tamper Detector monitors changes in the camera's position or field of view. The instant a camera's position is changed a tamper detect alert is raised.

FTP push

Upon an event, the HSD62x can push a JPG image to one or two FTP servers. The event can be triggered externally by VMD, the Image Monitor, or Tamper Detect. The HSD62x can also periodically upload images to the remote server(s).

Web interface

Configuration, management, and live viewing are simplified by the access-controlled web interface. Full in-band control is available through Siqura Device Manager, Siqura's MX™ Configuration Tool Kit, and the HTTP API. The HSD62x is field-upgradeable.

Audio and I/O channels

Combining streaming video with duplex audio and I/O channels over IP, the HSD62x provides all the interfaces necessary for any CCTV application (CD-quality stereo audio, lip-sync audio, PTZ control, alarm contacts, etc.). The balanced audio inputs/outputs are suitable for all industrial audio systems. Siqura HSD62x series cameras provide eight alarm inputs and one relay alarm output. The user can select one or more of these alarm inputs to be propagated over an IP network to a remote video management system (VMS). The alarm output can also be remotely activated by a VMS.

Image stabiliser

The HSD621PRH and HSD626 models have a built-in image stabiliser to prevent vibrations from disrupting a camera view or footage, such as those caused by wind in pole-mount installations.

Superior protection

The HSD620PRH and HSD621PRH models have an IP67 ingress rating and the housing is constructed of materials designed to withstand intense levels of solar heat (945VA UV protected). Pressurising the housing, particularly with inert nitrogen gas, prevents moisture, pollution, and dust from damaging the camera.

The HSD626EXP also has an IP67 ingress rating. The robust construction of the HSD626EXP guarantees the safety of your facility even if the camera should come into contact with hazardous material. Its fully integrated stainless steel housing and mounting bracket protect this Siqura camera in exceptionally taxing conditions, including offshore installations, where corrosion is a constant threat. The camera housing is manufactured completely from Stainless Steel 316 which is ideally suited for use within the offshore and onshore environments. Stainless Steel screws and mounting bracket for additional wall or pole mount are incorporated ensuring a totally corrosion free unit.

Analogue output

With its analogue output, the hybrid HSD62x solution can provide local video for a public view monitor or local DVR.

Fiber interface accessory

A fiber option is available for direct connection of fiber to the dome via a flexible SFP interface. The XSNet™ range of SFP modules, with options for both single mode and multimode are available. The SFP interface is built into the dome itself so a wide range of mounting options is available.

Reliability

Dependability and high reliability are key factors in this dome's design cycle. Siqura HSD62x cameras are assembled with meticulous care and thorough testing at our ISO 9001-compliant factory.

3.3 Features Summary

Precise and Accurate Dome Performance

- Auto Calibration
- Preset accuracy of +/- 0.1°
- Preset speed up to 400°/sec
- Proportional Pan & Tilt Speed
- Preset Position/Sequence/Auto-Pan/Cruise

Dynamic Dome Applications

- Multilanguage OSD
- Support for multiple IP video streams (H.264, MPEG-2, MPEG-4, and MJPEG compression)
- Support for 2-way audio
- Remote PTZ control using the Pelco D protocol over IP
- Supports monitoring using SNMP
- Supports web-based configuration
- 8, 16, or 24 masking zones (model specific)
- 8 alarm inputs, 1 alarm output; support for remote streaming of alarm signals
- Video Motion Detection
- Flexible indoor/outdoor mountings
- Weather-resistant housing and sunshield (outdoor models)
- Pressurised housing (PRH models)
- Stainless Steel housing (HSD626EXP)

Superior Camera Image Quality

- Minimum illumination 0.1 lux, 0.01 Lux (B/W)
- Digital Slow Shutter
- Electronic Shutter
- Wide Dynamic Range
- Auto White Balance
- Backlight Compensation
- Auto Exposure
- Image Inverse
- Electronic Image Stabiliser (model specific)
- Removable IR-Cut Filter

4 Interfaces

A variety of methods can be employed to communicate with the HSD62x. This chapter outlines the interfaces you can use to control the unit and manage the media streams it is handling.

In This Chapter

4.1 ONVIF

The Open Network Video Interface Forum (ONVIF) is an open industry forum for the development of a global standard for the interface of IP-based physical security products. ONVIF is committed to the adoption of IP in the security market. The ONVIF specification ensures interoperability between products regardless of manufacturer. It defines a common protocol for the exchange of information between network video devices including automatic device discovery, video streaming and intelligence metadata. The HSD62x fully supports ONVIF. It has been tested to support ONVIF Profile S.

4.2 OSA

Siqura's Open Streaming Architecture (OSA) consists of a standard set of open communication protocols to govern media streaming via RTSP and equipment management via HTTP. OSA enables easy integration of the HSD62x with third-party products. The protocol consists mainly of different CGI (Common Gateway Interface) program calls for listing and configuring parameters. A detailed description of the HTTP API is given in the *Siqura Programming Interface* specification which can be downloaded at www.siqura.com.

4.3 Web UI

Using the HSD62x's web server is the most straightforward way to access the unit. The webpages enable you to configure the settings of the HSD62x and view live video images from a standard web browser.

4.4 MX/IP

MX/IP is a proprietary Siqura protocol which gives direct access to the settings of the HSD62x. Using special MX software, such as *MX Configuration Tool*, HSD62x settings can be read from and written to the *Management Information Base* (MIB), a list of variables stored inside the unit. Offering full control of the HSD62x, the MIB enables you to remotely configure device settings and manage media streams. Additional MX viewing and control software offers real-time monitoring of video streams and playback of recorded images. For more information about MX/IP, the MIB, and Siqura's EMX network service, refer to the manuals which document the MX SDK and the MX applications.

Note: If you prefer using open standards, you can disable the MX/IP protocol. This is done on the MX tab of the Device Management page. Be aware that doing so prevents you from upgrading the HSD62x firmware through *MX Firmware Upgrade Tool*.

4.5 SNMP

The Simple Network Management Protocol (SNMP), part of the internet protocol suite, can be used to monitor network devices such as the HSD62x for conditions or events that require administrative attention. For more information, refer to appropriate literature on SNMP.

The HSD62x supports in-band SNMP. Via SNMP, several status variables can be read and traps can be generated on events. You can configure HSD62x SNMP settings on the SNMP tab of the Device Management page.

The SNMP Agent is MIB-2 compliant and supports versions 1 and 2c of the SNMP protocol.

Note: The HSD62x includes SNMP support for its image quality monitor and tamper detect functions. A trap is sent when bad image quality or camera tampering is detected and another one when the situation returns to normal.

Required MIB files can be downloaded at www.siqura.com.

4.6 SAP

The HSD62x supports the Session Announcement Protocol (SAP), a protocol used for broadcasting multicast session information. A SAP listening application can listen to the announcements advertised by the HSD62x SAP announcer. The application can use this information to receive a video or audio stream that the HSD62x is transmitting to the advertised multicast address. For more information, see the description of the Video and Audio pages.

4.7 NTCIP

The National Transportation Communications for ITS Protocol (NTCIP) is a communication protocol deployed in Intelligent Transportation Systems (ITS) in the USA. It is a family of standards designed to provide definitions of common data elements and communication protocols for the interaction between traffic management centre(s) and road-side devices such as cameras, traffic signals, and highway lighting. The goal of the standards is to achieve interoperability and interchangeability between systems manufactured by different vendors in order to reduce the total cost of traffic systems, including maintenance.

The HSD62x supports all the mandatory parts and some of the optional parts of the NTCIP CCTV specification as laid down in the NTCIP 1205:2001 v01.08 document. For details about the NTCIP configuration of the HSD62x, see *Appendix: NTCIP Configuration*.

The HSD62x supports the standard NTCIP SNMP MIB. This MIB database is used to store information, which in turn will be used to control cameras and other devices in the transportation management system. An electronic version of the MIB is available from a NEMA FTP site. To get access to the FTP site, send your name, organisation name, and email address to ntcip@nema.org, and request access.

5 Media streaming via RTSP

The easiest way to extract a video or audio stream from the HSD62x is to use the Real-Time Streaming Protocol (RTSP). This chapter explains the role of the HSD62x in RTSP media sessions and describes how to open a media stream from the unit in a video player plug-in.

In This Chapter

5.1 RTSP and RTP

The HSD62x implements an RTSP server. A hardware or software decoder (the latter within a viewing application, for example) is the RTSP client. Media sessions between client and server are established and controlled with RTSP. Media stream delivery itself is handled by the Real-Time Transport Protocol (RTP). The HSD62x supports video and audio streaming via UDP and TCP.

Use the following URL format to get a video stream into, for example, VLC or QuickTime.

rtsp:// <IP address of encoder>:<RTSP Port>/VideoInput/<x>/<y>/<z>

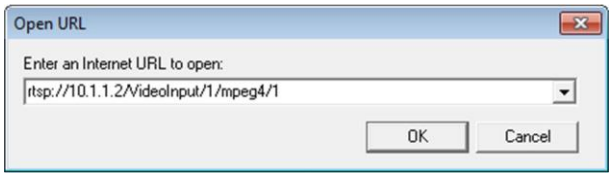
where:

<**x**> is the number of the Video Input
<**y**> is the media type of the required encoder
<**z**> is the encoder number

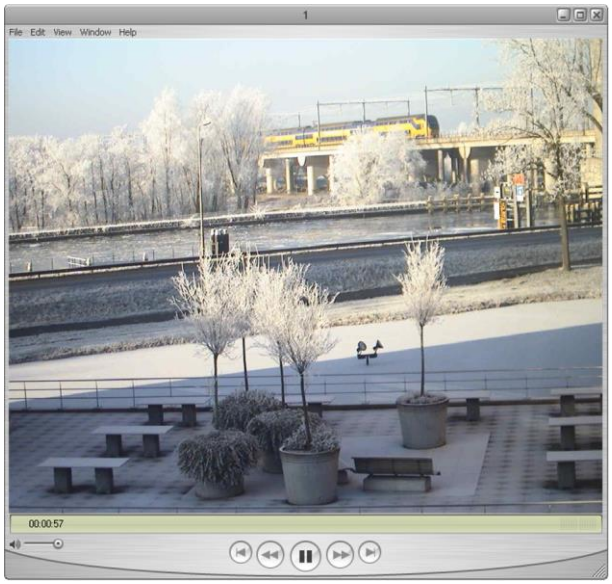
Note: The <RTSP Port> is optional. If not entered, port 554 is used by default.

Note: The encoder number index <**z**> in the URL only takes enabled encoders into account, with the encoder mode set to the indicated media type <**y**> (RTSP is a streaming protocol which takes care of stream control; it does not handle device configuration).

The stream in the following figure will be pulled from the unit with the IP address 10.1.1.2, using Video Input 1 and the first enabled MPEG-4 encoder.



RTSP URL format



A HSD62x video stream viewed in QuickTime

5.2 Transfer via UDP or TCP

The HSD62x supports the following types of streaming.

- UDP/IP (multicast and/or unicast)
- TCP/IP (RTP, RTP over RTSP, RTP over RTSP over HTTP)

The HSD62x reports to the client that it supports transfer over UDP and TCP. The choice is made on the client side. In VLC, for example, using a TCP connection can be forced (*Preferences > Inputs and Codecs > Network > RTP over RTSP (TCP)*).

For details on controlling HSD62x media streams through HTTP and RTSP, refer to the *Siqura Programming Interface* specification. You can download this HTTP API specification at www.siqura.com.

6 Access the webpages

The webpages of the HSD62x offer a user-friendly interface for configuring the settings of the unit and viewing live video images over the network. This chapter explains how to connect to the built-in web server.

In This Chapter

6.1 System requirements

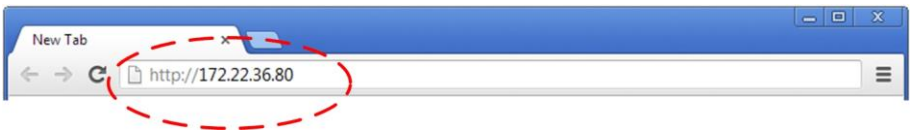
To access the webpages of the HSD62x you need the following.

- A PC with a web browser installed.
- An IP connection between the PC and the HSD62x.

6.2 Connect via web browser

To connect to the unit via your web browser

1. Open your web browser.
2. Type the IP address of the HSD62x in the address bar, and then press ENTER.
   If your network configuration is correct you are directed to the login page of the unit.
   If the page is not displayed correctly, make sure that JavaScript is enabled in your web browser (see *Appendix: Enable JavaScript*).



Type the IP address of the HSD62x in the address bar of the browser

6.3 Find the unit with Siqura Device Manager

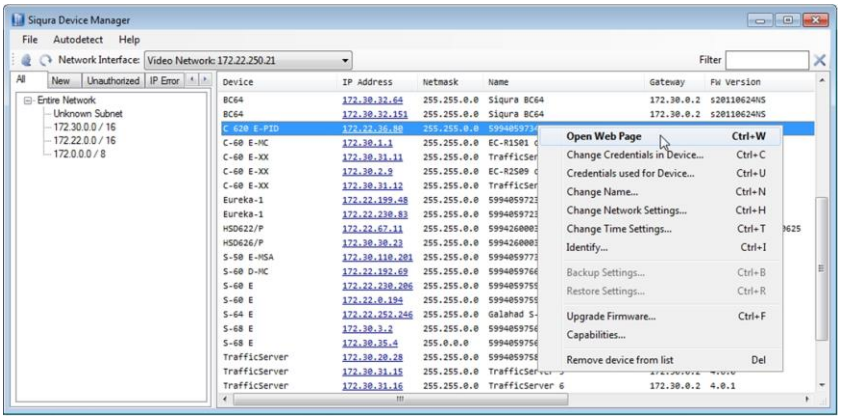
Siqura Device Manager is a Windows-based software tool that you can use to manage and configure Siqura IP cameras and video encoders. The tool automatically locates Siqura devices and offers you an intuitive interface to set and manage network settings, configure devices, show device status, and perform firmware upgrade.

To install Siqura Device Manager

1. Download the latest version of Siqura Device Manager at *http://www.siqura.com/support-files*.
2. Double-click the setup file.
3. Follow the installation steps to install the software.

To connect to the unit via Siqura Device Manager

1. Start Siqura Device Manager
   The network is scanned.
   Detected devices appear in the List View pane.
2. If multiple network adapters exist, select the appropriate adapter to scan the network that you wish to connect to.
3. To perform a manual search, click the **Rescan** button.
4. Use the tabs in the *Tree View* pane to define the scope of your search.
5. Click the column headings in the *List View* pane to sort devices by type, IP address, or name.
6. To connect to the webpages of the HSD62x, double-click its entry in the device list,
   - or -
   Right-click the entry, and then click **Open Web Page**.
   The login page of the HSD62x is opened in your web browser.



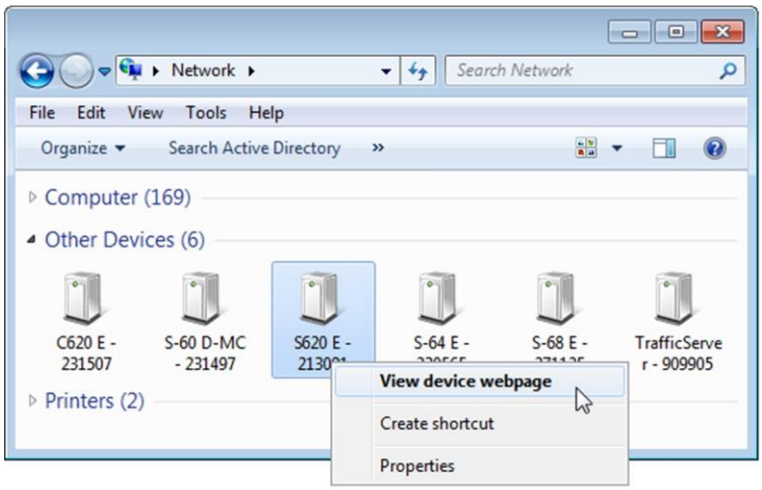
Connect to a device via Siqura Device Manager

6.4 Connect via UPnP

Universal Plug and Play (UPnP) support is enabled by default on the HSD62x. With the UPnP service enabled in Windows (see *Appendix: Enable UPnP in Windows 7*), you can access the unit from Windows Explorer.

To connect to the unit via UPnP

1. In Windows Explorer, open the **Network** folder.
   Detected devices in the same subnet as the computer are displayed, including Siqura codecs and cameras with UPnP support.
2. Double-click the HSD62x,
   - or -
   Right-click the unit, and then click **View device webpage**.
   The login page of the HSD62x is opened in your web browser.



Connect to a device via Windows Explorer

For more information about UPnP, see *Auto Discovery* (*Device Management* chapter).

6.5 Log on to the unit

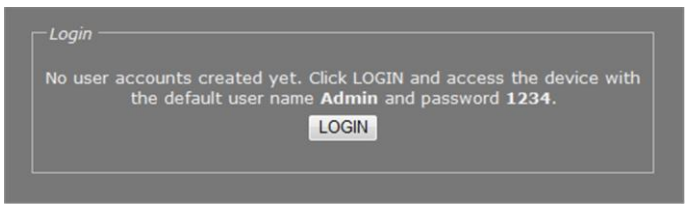
Users with a valid account for the HSD62x can log on to the unit.

To log on to the HSD62x

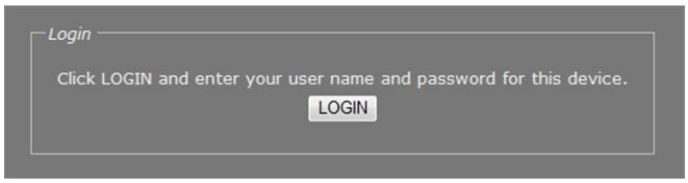
1. On the Login page, click **LOGIN**.
2. Log on with the account that was created for you.
   User name and password are case sensitive.
   The default user name set at the factory for the HSD62x is "Admin" with password "1234".

   Note: To prevent unauthorised access from people using the default account, we recommend that the administrator changes the default password after first login and creates separate user accounts as needed. This also removes the default account details from the login screen.

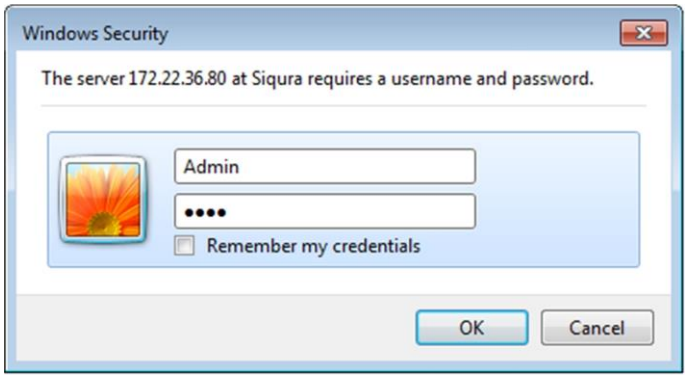
3. Click **OK** or press ENTER.
   On successful login, the Live Video page appears.



Access possible with default Admin account only (default Admin password unchanged)



Access possible with the user account created for you (default Admin password has been changed)



Connect dialogue box

7 Navigate the webpages

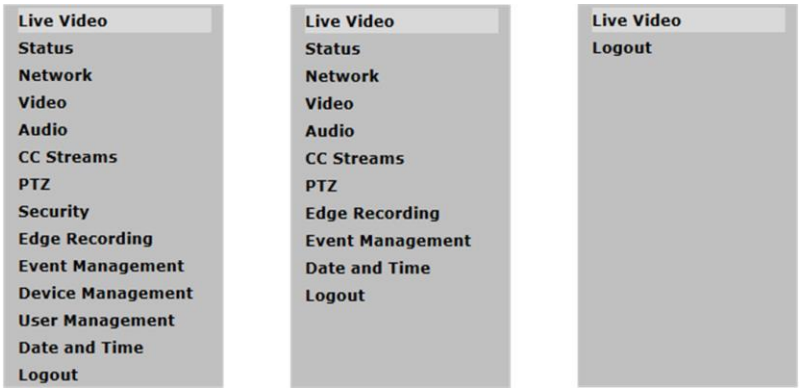
This chapter introduces the webpages and common elements found on them. It also discusses user account types and associated access levels.

In This Chapter

7.1 Menu

Use the menu on the left of each webpage to go to the other pages.

- Click the option associated with the user or device settings you want to view or configure.
- Click **Live Video** to reopen the home page of the HSD62x.
- Click **Logout** to log out the current user and display the Login box.



HSD62x menus available to (from left to right) Admin, Operator, and Viewer accounts

7.2 Access control

Whether a specific HSD62x webpage is available to you on the navigation menu depends on the user account you logged in with. The unit supports three account types with associated access levels.

Account	User rights
Admin	Full access to all pages. Create, edit, and delete user accounts on User Management page.
Operator	Access to device configuration pages. No access to Device Management, User Management, and Security.
Viewer	Home page only. View live video.

7.3 Webpage elements

Apart from the menu, the webpages share the following features.

- **Sections** are used to organise parameters and their values.
- **Buttons** (see below) appear in sections with editable fields.
- **Tabs** are used to organise page content.
- **Check boxes** enable you to select features.

This Button	Does This	Note
Save	Writes changes to the unit.	Some sections (for example, those on the VMD tab of the Video page) do not have *Save* and *Cancel* buttons. Changes you make here are immediately written to the device.
Cancel	Undoes unsaved changes and shows values as they were before editing.	
Advanced >>	Opens the Advanced Settings section with additional settings.	**Important:** Be aware that configuring Advanced Settings requires in-depth understanding of the impact of your changes on the workings of your HSD62x. If in doubt, do *not* change the default values.
<< Simplified	Closes the Advanced Settings section.	

8 View live video via browser

On the Live Video page, you can view live video from the HSD62x. You can also use this page for PTZ operation of the HSD62x.

In This Chapter

8.1 Activate Live View

Live View inactive

The Live View function is inactive when you open the Live Video page.

To activate Live View

- Click **Play LiveView>>**.

8.2 View live video

Live View activated

With Live View enabled, the Live Video page has the following items.

Item	Description	
<<Stop Live View	Closes the preview.	
Encoder	*Encoder 1*	The video encoder used to encode the images seen in the preview.
	Encoder 2	
	H.264 - 1	
	H.264 - 2	
	Live View	
Video player	*QuickTime*	The plug-in used to display the images in the previews on this page and the Video pages.
	VLC	
	No Player	Neither QuickTime nor VLC is detected on the host machine. For more information, see *Appendix: Install a video player*.
Refresh rate	Available in Live View encoder mode. Indicates the current refresh rate of the webpage.	
Preview	Shows live images from the video source as encoded by the selected encoder. MPEG-2/4 and H.264 previews are streamed over RTSP. Live View encoder previews are transported to the webpage using the HTTP protocol.	
Volume	Available in Encoder 1/2 and H.264 - 1/2 mode. Move the slider to control audio volume.	
Mute	Available in Encoder 1/2 and H.264 - 1/2 mode. Select/clear this box to mute/unmute audio.	

Enable an encoder

The preview shows images from the selected encoder, unless the specific encoder is disabled. You can enable and disable encoders on the Video page.

Enable audio

If the audio controls are not available in Encoder 1/2 or H.264 - 1/2 mode, go to the Audio page and make sure that audio is enabled and properly configured.

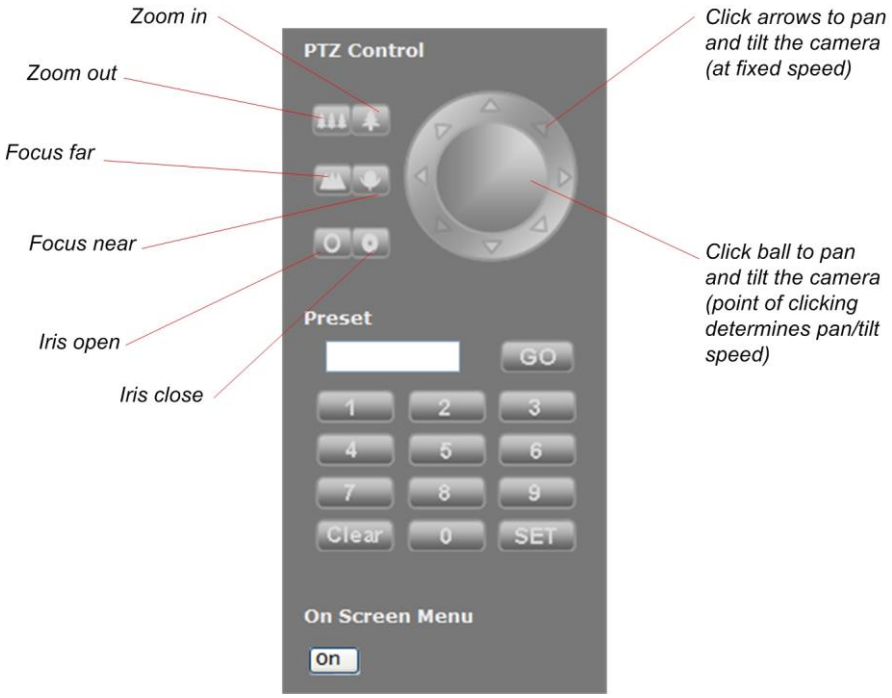
Audio Disabled warning

8.3 Use your browser for PTZ control

The PTZ Control panel on the right of the preview can be used for PTZ operation of the HSD62x. The panel is divided into three sections: PTZ Control, Preset, and On Screen Menu.

PTZ control

Use the upper section of the PTZ Control panel to pan, tilt, zoom, and focus the camera, and control the iris, as shown in the following figure.



PTZ control panel

Preset

Use the Preset section to define and recall preset camera positions.

To enter and save a preset camera position

1. Click the appropriate number button(s) to enter the preset number.
2. Adjust the position of the camera for the desired view.
3. When satisfied with the position, click **SET**.

Note: The SET button is not available to users with Viewer rights.

To recall a preset camera position

1. Click the appropriate number button(s) to enter the preset number.
2. Click **GO**.

To erase a preset camera position

1. Call the preset.
2. Press **Clear**.
3. If desired, override the preset with a new preset position.

On-Screen Menu

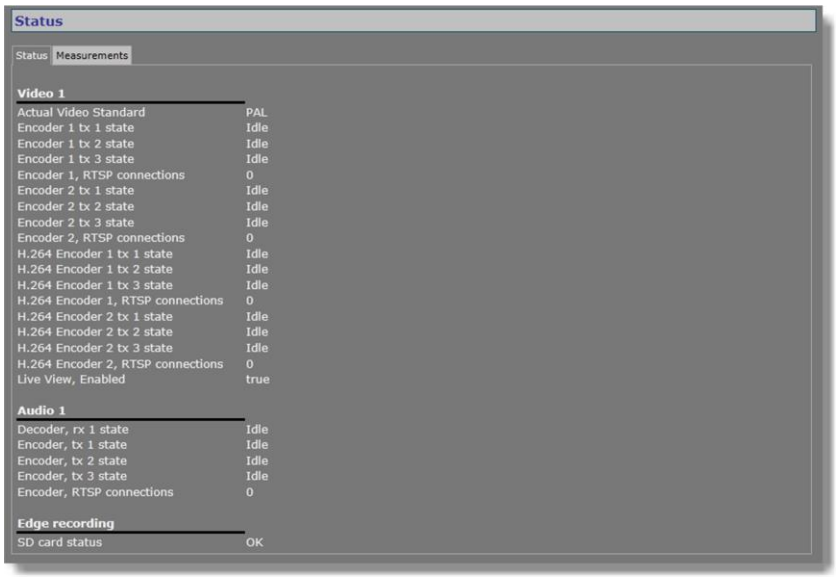
Pressing the **On** button opens the on-screen menu (OSM) that gives access to the camera zoom block settings. For details, see the chapters describing the OSM.

9 Status

The status information and measurements on the Status page may provide helpful clues to identify and troubleshoot technical issues.

In This Chapter

9.1 View status information



Status page: a snapshot with automatic page updating

9.1.1 Stream states

The Status tab provides information on the stream states of video and audio streams. A stream state is reported as *Idle*, *Waiting*, or *OK*.

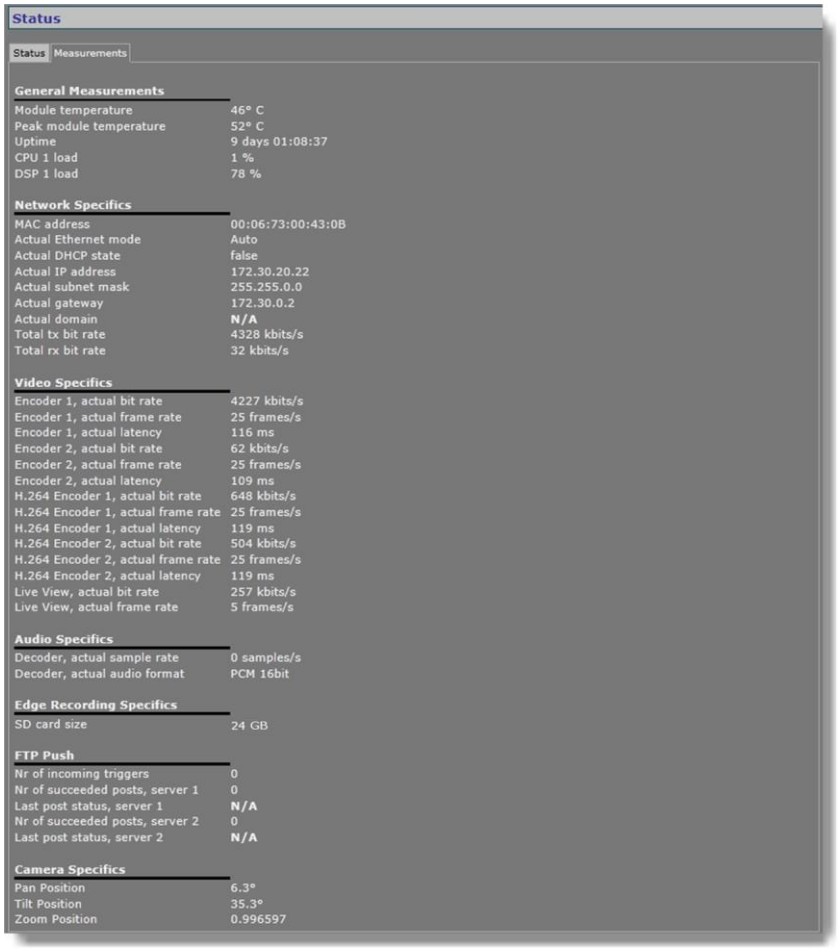
Stream state	Description
OK	There is nothing wrong with the stream. Note that if the video signal is removed from the video input on the encoder side, the Decoder rx state is still reported as *OK*, since the video transmitter is sending a stream - that is, a *No Video* image - to the decoder.
Idle	The transmitter/receiver is not enabled.
Waiting	The transmitter/receiver has lost its stream connection. Possible causes: ▸ An incorrect port number. ▸ The transmitter on the encoder side is not enabled. ▸ No FloodGuard packets have been received for more than three seconds. For details on the FloodGuard flooding prevention mechanism, see the note on FloodGuard in the Video chapter.

9.1.2 Edge recording

The Edge recording section shows whether an SD card is present and if it can be accessed.

Item	Description	
SD card status	*OK*	SD card present and functioning.
	Error	Unable to access SD card. Possible damage to card, connectors, or slot.
	Not present	No SD card detected.

9.2 View measurements data



Status > Measurements

9.2.1 General, network, and stream measurements

The Measurements tab shows general measurements, such as the module temperatures (current and peak) and the module uptime.

You also find network specifics here, such as the MAC address, the actual IP address, the network load from this module, the load information per processor, and signal stream-specific details.

9.2.2 SD card size

Note that the storage capacity available for edge recording is limited to 75% of the actual SD card size given under Edge Recording Specifics - that is, for example, 24 GB of a 32 GB SD card. This limit is to prevent slow read/write speeds.

9.2.3 FTP Push

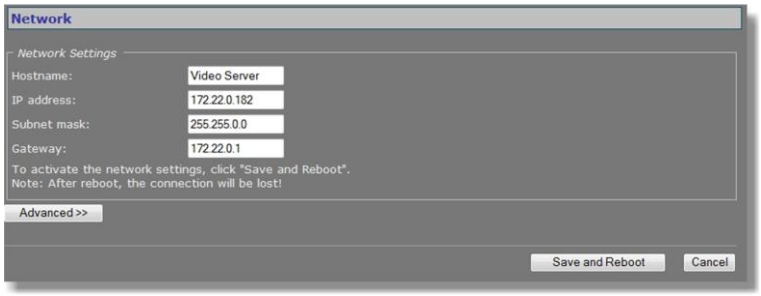
You can use the FTP Push data to monitor the FTP Push process.

10 Network

On the Network page, you can change the network settings of the HSD62x. In this chapter, you learn how to set a valid, fixed IP address and, alternatively, how to have an IP address automatically assigned by a DHCP server.

In This Chapter

10.1 Network settings



Network page

On the Network page, you can set the name of the unit, the IP address, the subnet mask, and the gateway IP address. For correct functioning of the HSD62x, it is vital to set its network addressing to be compatible with the subnet it is hooked into.

Note: The factory-set IP address of the unit is in the 10.x.x.x range with a subnet mask of 255.0.0.0. Achieving initial communication with the unit requires that the network adapter of the browsing PC is set to the factory-default subnet of the HSD62x. Once you have made the webpages accessible in this way, you can use the Network page to change the default network settings to the desired settings.

For IP address input to be valid, the unit's IP address:

- must be within the 1.0.0.1 – 223.255.255.254 range
- cannot start with 127 (reserved for loopback on local host)

After changing IP settings, do not forget to save the new settings and reboot the unit (see chapter *Device Management*).

Important: It is essential to set at least the IP address and subnet mask correctly. Keep these value on record, otherwise management of the unit will require special software.

10.2 Advanced

Network > Advanced

10.2.1 Services

Item	Description
RTSP server enable	Select this check box to enable the HSD62x to act as a server in RTSP media sessions.
RTSP server port	This is the port number used to contact the RTSP server. The default transport layer port number for the RTSP protocol is 554 for both UDP and TCP transports.

10.2.2 Network

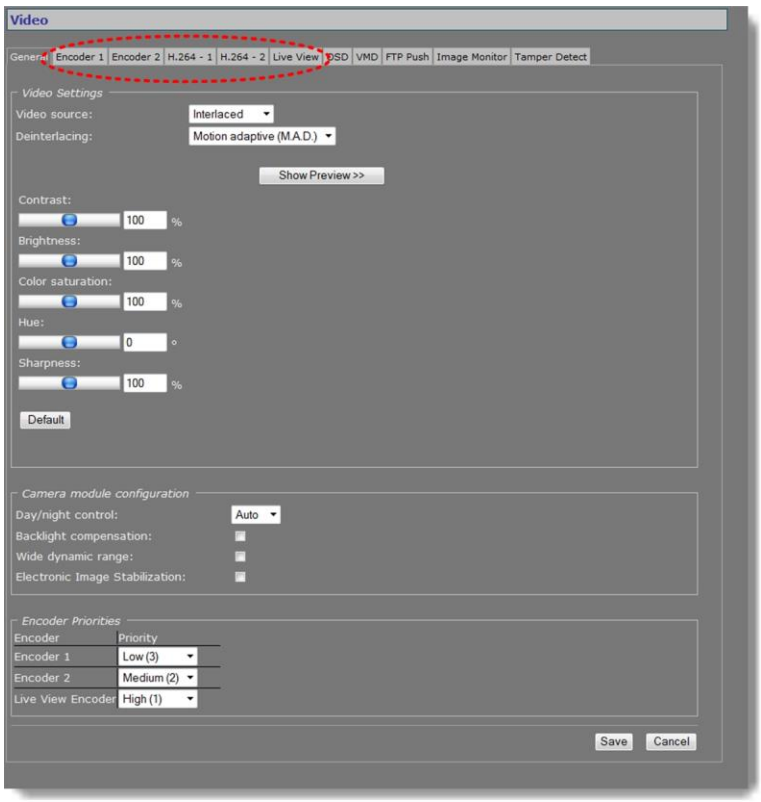
Item	Description	
DHCP enable	Allows assigning of the IP address by a DHCP server instead of using static IP addressing.	
Ethernet mode	Transmission mode and speed.	
	Auto	Autonegotiation (default).
	10 HDX	Half duplex, 10 Mbit.
	10 FDX	Full duplex, 10 Mbit.
	100 HDX	Half duplex, 100 Mbit.
	100 FDX	Full duplex, 100 Mbit.
MTU size	Set to Ethernet (1500) by default. Maximum Transmission Unit (MTU) is the maximum size (in bytes) of an IP packet that can be transmitted over the network without dividing it into pieces. An MTU size that you select here must be supported on the other side of the link.	

11 Video

On the Video page, you can configure settings for video encoding, on-screen display, video motion detection, FTP push, image quality, tamper detect, and privacy masks.

In This Chapter

11.1 Video encoding overview



Video encoder tabs on the Video page

Multicodec

The HSD62x has a built-in, multicodec video server. Four separate video encoders (Encoder 1, Encoder 2, H.264 - 1, H.264 - 2) can convert the camera's analogue video signal into independent digital video streams with different resolutions and frame rates. Encoders 1 and 2 can both handle MPEG-2/4 and MJPEG encoding.

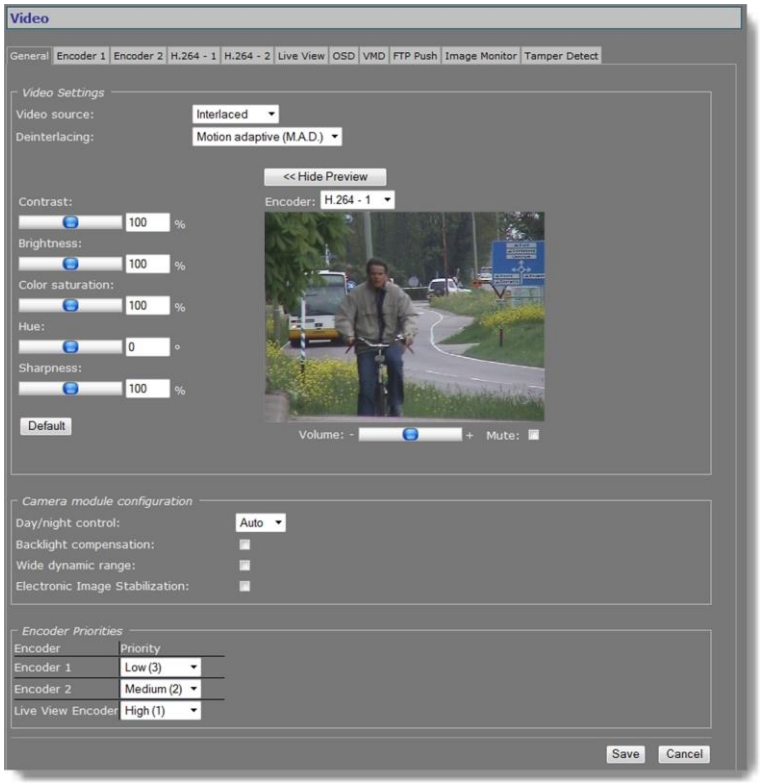
Multistreaming

Up to twenty streams can be retrieved using RTSP. A total of twelve copies – three per independent MPEG-2, MPEG-4, MJPEG, or H.264 video stream – can be transmitted to different unicast and/or multicast destinations using Siqura's proprietary MX protocol. The HSD62x supports source-specific multicast (SSM) and it is also possible to use the Session Announcement Protocol (SAP) to transmit MPEG-2/-4/MJPEG and H.264 streams to multicast destinations.

Live View encoder

The Live View encoder can convert the analog video signal to (M)JPEG format for streaming to web applications or remote devices using the HTTP protocol. Via FTP Push, JPEG images can also be posted on an FTP server.

11.2 General



Video > General

Settings on the General tab apply to all encoders.

11.2.1 Video Settings

Item	Description	
Video source	*Interlaced*	Interlaced scan, originating from traditional television systems, uses two fields to create a frame, one holding the odd lines in the image, the other holding the even ones. The two fields are captured at different moments. It is recommended to deinterlace (see below) interlaced video if you are planning to watch it on a progressive display, such as a computer monitor.
	Progressive	Progressive scan captures the entire image in one go. Images from progressive sources do not need deinterlacing, therefore. Selecting *Progressive* dims the *Deinterlacing* list.
Deinterlacing	*Off*	No deinterlacing performed.
	Motion adaptive (M.A.D.)	This technology creates new pixels through interpolation in areas of motion and uses pixels from the next field where there is no motion. This is generally the best setting for reducing artefacts in images with moving objects.

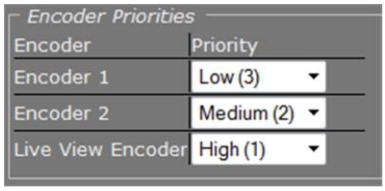
Item	Description	
	Edge adaptive (E.A.D.)	Pixels are interpolated along edges to remove the appearance of jagged edges. This is the recommended setting for making snapshots for face recognition purposes, for example.
	Note: The best option is to experiment with the two deinterlacing methods to achieve the highest quality image possible for your application.	
Show Preview>>	Click to view live images and see the effect of the current settings.	
<<Hide Preview	Closes the preview. This may improve webpage responsiveness.	
Encoder	*Encoder 1*, *Encoder 2*, *H.264 - 1, H.264 - 2,* or *Live View*. List displayed on clicking Show Preview>>. Allows to select a video encoder to handle the images seen in the preview.	
Volume	Available in Encoder 1/2 and H.264 - 1/2 mode. Move the slider to control audio volume.	
Mute	Available in Encoder 1/2 and H.264 - 1/2 mode. Select/clear this box to mute/unmute audio.	
Contrast	Move the slider or type a value to adjust the setting aided by the visual feedback from the preview. A setting entered here applies to all video encoders.	
Brightness		
Color saturation		
Hue		
Sharpness		
Default	Restores the original values.	

11.2.2 Camera module configuration

Camera module configuration settings

Item	Description	
Day/night control	*Auto*	Ensures that even in minimal light, the camera still produces clear images. Under poor lighting conditions, the camera automatically becomes infrared sensitive by removing the IR-cut filter.
	Night	Manual day/night control.
	Day	
Backlight compensation	Improves image exposure by using the light near the object as a reference. Use in situations where the observed object is unclear due to being under- or overlit.	
Wide dynamic range	Solves the problem of overlit images by taking the best of two pictures with different light references.	
Electronic image stabilization	When the camera is in its maximum zoom range, every small movement of the camera gives relatively large movement in the picture. The image stabilizer digitally compensates this movement for a stable picture. This feature is especially useful for pole-mounted cameras.	

11.2.3 Encoder Priorities

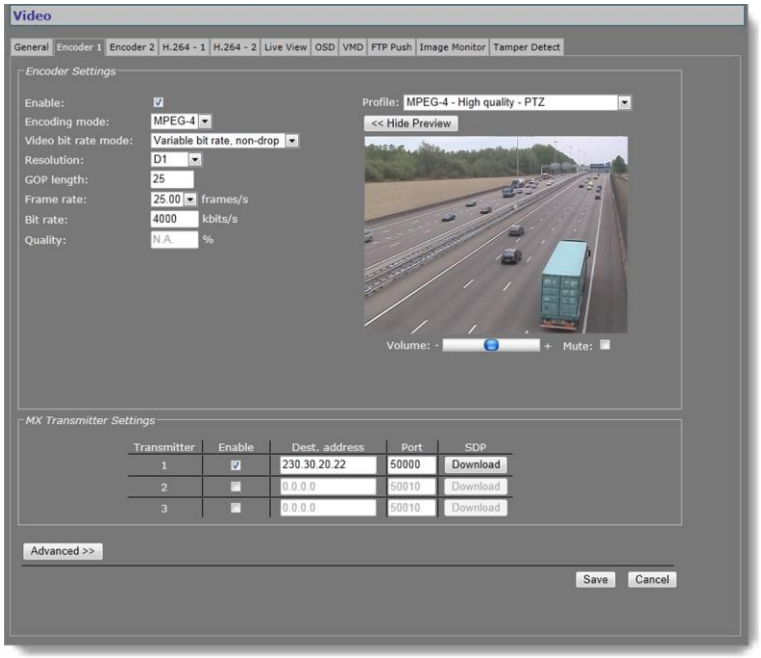


Priority list

Using the Encoder Priorities list, you can assign a priority to Encoders 1 and 2, and the Live View encoder. H.264 encoding uses a dedicated digital chip and is therefore not included in the list. Each priority can be assigned once. The encoder with high priority consumes all CPU power it needs, leaving the remainder, if any, to the next in line. The encoder with medium priority will show the same behaviour, possibly leaving little or no CPU power to the low-priority encoder.

Important: The highest priority is best assigned to the Live View encoder, because this is a relatively light task compared to the encoding tasks of Encoder 1 and Encoder 2.

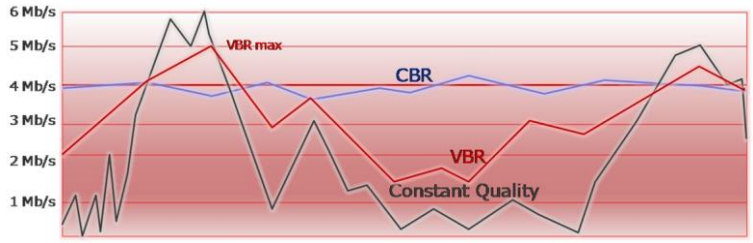
11.3 Encoder



Video > Encoder 1

11.3.1 Encoder Settings

Item	Description	
Enable	All encoders are enabled by default. Use this check box to disable/re-enable this specific encoder.	
Encoding mode	*MPEG-4*, *MPEG-2*, or *MJPEG*	The method used to compress the analogue video input signal. The HSD62x can stream (M)JPEG over UDP and HTTP. ▸ To enable and configure **UDP**/MJPEG streaming, select MJPEG from the Encoding mode list and configure settings. ▸ To transport JPEG over **HTTP** and/or to use the Live View previews in the webpages, go to the Live View tab, enable the Live View Encoder, and configure its settings.
Video bit rate mode	Controls variations in bit rates. For more information, see "Notes" later in this chapter.	
	MPEG-4 encoding mode supports the following bit rate modes.	
	Constant quality	Keeps the image quality constant, with varying network load (from a few kb/s to 10 Mb/s or higher). The image quality is determined by the values set for the “Q min I” and “Q min P” parameters in the Advanced Settings section.

Item	Description	
	Variable bit rate	Keeps the image quality constant, with varying network load (from a few kb/s to 10 Mb/s or higher). The image quality is determined by the values set for the “Q min I” and “Q min P” parameters in the Advanced Settings section.
	Variable bit rate, non-drop	Variable network load, but limited to value set for the *VBR maximum bit rate* parameter in the Advanced Settings section. The quality will decrease when the *VBR maximum bit rate* is reached. The frame rate will be constant.
	Constant bit rate	Keeps network load constant at the cost of varying image quality. Frames may be skipped.
	Constant bit rate, non-drop	Keeps network load constant at the cost of varying image quality. Frames are never skipped.
		
	MPEG-2 encoding mode supports the following bit rate mode.	
	Constant bit rate, non-drop	Keeps network load constant at the cost of varying image quality. Frames are never skipped.
	MJPEG encoding mode supports the following bit rate modes.	
	Constant quality	Keeps the image quality constant, with varying network load (from a few kb/s to 10 Mb/s or higher). The quality is determined by the value set for the *Quality* parameter (see below).
	Constant bit rate	Keeps network load constant at the cost of varying image quality. Frames may be skipped.

Resolution

The following resolutions are supported.

resolution (h x v)	**PAL**	**NTSC**
D1	720x576	720x480
2/3 D1	480x576	480x480
1/2 D1	352x576	352x480
4*CIF*	704x576	704x480
2CIF	720x288	720x240
CIF (top field only)	352x288	352x240
QCIF	176x144	176x120

VGA (640x480) and QVGA (320x240) are also supported.

For more information about CIF resolutions, see "Notes" later in this chapter.

Item	Description
	Note: The HSD62x will simultaneously handle dual H.264 encoding and dual MPEG-2/4 encoding at full frame rate, and Live View encoding at 5 frames per second. Setting Encoders 1 and 2 to perform MPEG-2/4 encoding in D1 resolution at the same time may overtax the hardware. The total output bandwidth, including streams controlled by RTSP, and those enabled through SAP, should not exceed 25 Mb/s.
GOP length	Available in MPEG-2/4 mode. Distance in frames between two I-frames.
Frame rate	Selectable rates are determined by the video mode (PAL, NTSC) set on the General tab. PAL: 1-25 fps; NTSC: 1-30 fps.
Bit rate	Range: [10…15000]. Selecting a profile (see below), automatically sets the bit rate associated with the profile.
Quality	Available in MJPEG mode. Reflects the amount of compression. Generally speaking: the higher the quality setting, the lower the compression ratio and the more bits are consumed. This means a trade-off has to be found between the desired quality level and available bandwidth.
Profile	Preset combinations of settings for specific purposes. When a profile has been selected, changing one of its defined parameters sets the Profile box to '--', to indicate that a custom profile has been configured. When a freely chosen parameter value combination matches a preset profile, the name of the profile shows in the Profile box.
Show Preview>>	Click to view live images and see the effect of the current settings.
<<Hide Preview	Closes the preview. This may improve webpage responsiveness.
Volume	Move the slider to control audio volume.
Mute	Select/clear this box to mute/unmute audio.

11.3.1.1 Combinations of settings

Set sensible combinations of video bit rate mode, resolution, GOP length, and frame and bit rates. When setting and saving these values, you may notice that inappropriate value combinations are 'corrected' by automatic selection of the closest suitable combination. The output bit rate set may range from 10-15000 kbps. The total output bandwidth should not exceed 25 Mb/s.

11.3.1.2 Notes

Note on CIF resolutions: 2CIF, CIF, QCIF use only one of the two frame fields. When CIF-encoded pictures are displayed on a monitor, the decoder simulates the second field (by extrapolation from the first field) in order to present two frame fields. CIF is mostly used for recording purposes, as a compromise between good video quality and storage capacity needed.

Note on Encoder Settings: Video bit rate mode can be set to be constant (i.e. the number of bits in a group of pictures) or variable. Selecting the correct mode for a given application, with emphasis on a good compromise between detail and good representation of frequent changes (motion), is generally vital.

Constant bit rate mode (CBR) is generally safest. Although the image quality may vary, the network load generated will remain fairly constant.
If constant picture quality is required and a varying network load will pose no problems, choose *Variable bit rate mode* (VBR). Video streaming is generally smoother under VBR.

Improving video picture quality and video stream quality, in terms of latency and smoothness for example, is subject to trade-offs. Many aspects of picture quality and stream quality are governed by a series of compression and signal parameters which may work favorably on one aspect while adversely affecting another.
For example, increasing the bit rate generally improves video quality, but also puts additional load on the network. But even for a given bit rate and network performance, video quality and streaming are influenced by other parameters and aspects. Please consult appropriate literature on video encoding formats, and application notes for clarification.

If in doubt about the effects of specific encoder settings, you are advised to select the profile offering the closest match to your required application.

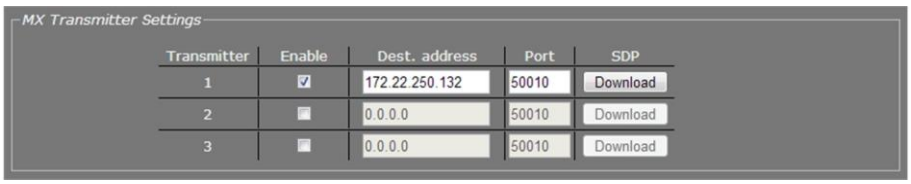
11.3.2 Make a video connection

Creating a video link between a video encoder and a video decoder involves two steps:

- Configuring settings of the encoder
- Configuring settings of the decoder

To configure the encoder settings

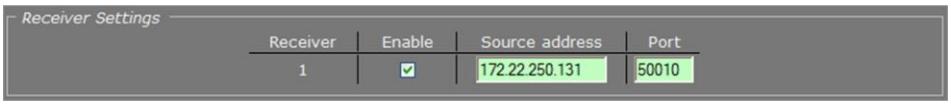
1. Open the webpages of the encoder, go to the Video page, and then open the appropriate Encoder tab.
2. In the MX Transmitter Settings section, specify the destination IP address.
   This is the address of the video decoder which will receive the video stream.
3. Enter the port number of the decoder.
   For more information about port numbers, see the *Port Numbers* section.
4. Select **Enable**, and then click **Save**.



Video Transmitter Settings (encoder side).
Transmitter 1 enabled, holding the decoder IP address and input port number.
An input port number must be used only once per device.

To configure the decoder settings

1. Open the webpages of the decoder, go to the Video page, and select the Decoder tab.
2. In the MX Receiver Settings section, specify the source IP address.
   This is the address of the video encoder which will transmit the video stream.
3. Enter the port number of the decoder.
   For more information on port numbers, see the *Port Numbers* section.
4. Select **Enable**, and then click **Save**.



Video Receiver Settings (decoder side).
Receiver 1 enabled, holding the encoder IP address and the decoder input port number.
An input port number must be used only once per device.

With these settings configured correctly, the video link is established. The decoder takes the video stream from the encoder, detects the video format and uses the appropriate decoding algorithm to convert the stream to an analogue output signal.

Note: Source and destination IP addresses can be unicast or multicast. For more information, see the *Multicast* chapter.

Highlighted fields

The source address and port number fields are highlighted in green when the enabled receiver receives a stream from the specified source. The two fields are marked in red when no stream is received with the receiver enabled and correctly configured.

SDP download

Use the SDP Download button to download a Session Description Protocol (SDP) file from the encoder. SDP files contain streaming media initialisation parameters and properties. An SDP file does not deliver media itself but through file association the media stream can be opened in media players such as QuickTime and VLC. You can also use the SDP file to specify the URI in your web browser.

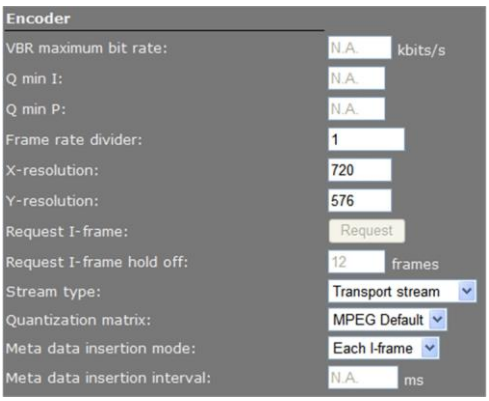
11.3.3 Advanced

Important: If in doubt about these settings, do *not* change the default values.

11.3.3.1 Encoder

Depending on the selected encoding mode, specific parameter values in this section are dimmed - that is, not available for configuration.

MPEG-2 mode

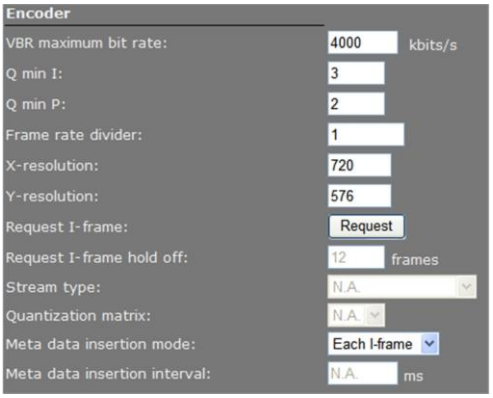


Video > Encoder # > Advanced > Encoder (MPEG-2 mode)

Item	Description	
Frame rate divider	Relates to the frame rate configured in the Encoder Settings section.	
X-resolution	Variables that enable you to freely set picture resolution instead of using the resolution presets in the Encoder Settings section.	
Y-resolution		
Stream type	*Transport Stream* or *Elementary Stream*.	
Quantization matrix	*MPEG Default*, *Alternative 1*, or *Alternative 2*.	
Meta data insertion mode	For details, see the section on Meta Data Insertion.	
	Disabled	No meta data added to stream.
	Fixed interval	Activates *Meta data insertion interval* parameter (below).
	Each I-frame	Data block is added after each I-frame. The interval is determined by the GOP length, therefore.
Meta data insertion interval	Activate this parameter by setting *Meta data insertion mode* (above) to *Fixed interval*.	

Note on Quantization: Quantization is a lossy compression technique used in image processing. It is based on the fact that variations in high frequency brightness, for example, are not easily distinguished by the human eye. A quantization matrix, a combination of predefined values, is used to reduce the amount of information in the high frequency components of an image, thereby making the stream more compressible. The values in a quantization matrix are often chosen such that certain frequencies are kept in the source to avoid losing image quality.

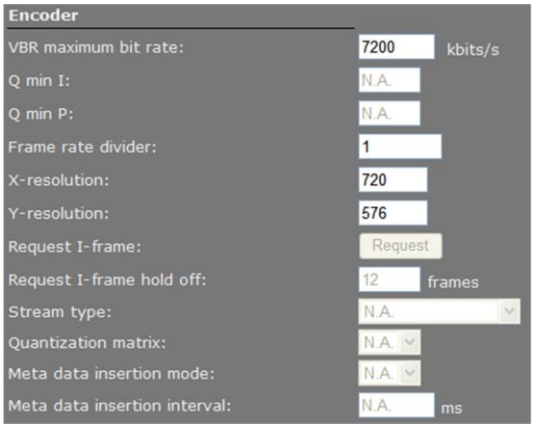
MPEG-4 mode



Video > Encoder # > Advanced > Encoder (MPEG-4 mode)

Item	Description	
VBR maximum bit rate	Range: [0...15000]. Sets a limit for variable bit rate.	
Q min I	Used to achieve consistent picture quality within a single GOP or across consecutive GOPs. Lower values produce a better picture, but will yield higher bit rates and require more processing. Default Q min I = 3; default Q min P = 2.	
Q min P		
Frame rate divider	Relates to the frame rate configured in the Encoder Settings section.	
X-resolution	Variables that enable you to freely set picture resolution instead of using the resolution presets in the Encoder Settings section.	
Y-resolution		
Request I-frame	When joining a multicast stream in the middle of a long GOP, requesting an I-frame will speed up response time, i.e. image display will start sooner.	
Request I-frame hold off	Range: [0…255] frames. Requesting (too) many I-frames may add to latency. To prevent this, you can specify the distance in frames, starting after the previous I-frame, before another I-frame is sent upon request.	
Meta data insertion mode	For details, see the section on Meta Data Insertion.	
	Disabled	No meta data added to stream.
	Fixed interval	Not supported for MPEG-4 streams. If a fixed interval is set, the nearest I-frame will be used.
	Each I-frame	Data block is added after each I-frame. The interval is determined by the GOP length, therefore.
Meta data insertion interval	Activate this parameter by setting *Meta data insertion mode* (above) to *Fixed interval*.	

MJPEG mode



Video > Encoder # > Advanced > Encoder (MJPEG mode)

Item	Description
VBR maximum bit rate	Range: [0...15000]. Sets a limit for variable bit rate.
Frame rate divider	Relates to the frame rate configured in the Encoder Settings section.
X-resolution	Variables that enable you to freely set picture resolution instead of using the resolution presets in the Encoder Settings section.
Y-resolution	

11.3.3.2 Stream Manager

Video > Encoder # > Advanced > Stream Manager

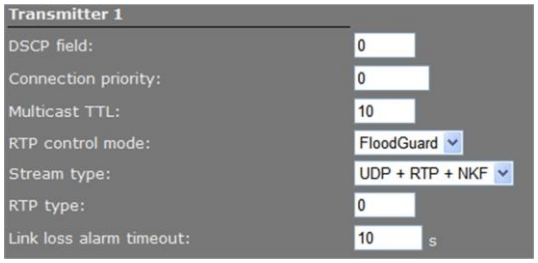
Balancing network load

Peaks in the network load vary with encoder output. Use the Stream Manager to balance network load. It can limit the output rate per stream sent to the transmitters. Be warned that setting the Stream bandwidth limit to a lower value may introduce latency because peaks in the encoder output will be buffered.

Item	Description
Stream bandwidth limit	Range: [0...100000] kbit/s. Sets the maximum bit rate per stream sent to the transmitters. This will serve to spread bursts but in its turn may give rise to latency, e.g. when handling large I-frames. You are advised to limit the outgoing bit rate per encoder to a maximum of 15 Mbit/s. The total outgoing bit rate of all encoders (including the Live View encoder), RTSP controlled streams, and SAP streams, should not exceed 25 Mbit/s. See the value for the Total tx bit rate parameter on the Measurements tab of the Status page. The Stream bandwidth limit mechanism is disabled when Low latency (see below) is selected. See also the graphic in the Note on FloodGuard.
Keep-alive interval	Range: [10 … 100000] milliseconds. The frequency for sending keep-alive messages to the encoder.
Low latency	Raises the output bandwidth limit to allow for peaks in the network load. To be selected if you need to keep the delay between the input and output of images as short as possible, for improved tracking with a dome camera for example. Selecting *Low latency* disables the *Stream bandwidth limit* mechanism.

Note on Low Latency mode: This mode may cause packet loss in the network. In this mode, short bursts of 100 MB data may overflow the input buffer of an Ethernet aggregation switch. As a rule of thumb, the average load of an Ethernet port should not exceed 40% of its maximum load (i.e. 40 MB for a 100 MB port).

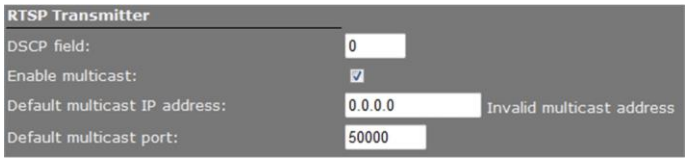
11.3.3.3 Transmitter



Video > Encoder # > Advanced > Transmitter 1

Item	Description	
DSCP field	Range: [0...63]. DSCP (Differentiated Services Code Point) uses the first 6 bits of the ToS (Type of Service) field in the header of IP packets for packet classification purposes. The bit pattern in the field indicates the type of service and forwarding behavior at the next node. With 26 bits, up to 64 network service types can be defined. *RFC 2724* (*http://www.ietf.org/rfc/rfc2474.txt*) describes the Differentiated Services (DS) field and the DiffServ Code Point. See also the note on Differentiated Services later in this chapter.	
Connection priority	Parameter intended for use with MX Software Development Kit (MX SDK).	
Multicast TTL	Range: [0...127]. Specify the number of routers (hops) that multicast traffic is permitted to pass through before expiring on the network.	
RTP control mode	Select the transport protocol to control the stream.	
	None	No transport protocol selected.
	FloodGuard	Flooding prevention mechanism. For more information, see the note on FloodGuard later in this chapter.
	RTCP	Real-Time Control Protocol, a network control protocol for use in communications systems to control streaming media servers.
Stream type	*UDP + RTP*	Default setting. Plain RTP stream over UDP.
	UDP + RTP + NKF	Adds an extended RTP header for Siqura applications requiring extra information.
RTP type	Default value: [0]. This parameter determines the RTP payload format (e.g. H.264, MPEG-2/4, or audio). To avoid an RTP type conflict, the values specified on both sides of the connection must be the same. The default value of "0" automatically sets the appropriate media type. You are advised not to change this setting.	
Link loss alarm timeout	Range: [1...1000] s. Default: 10 s. Time in seconds before alarm sent.	

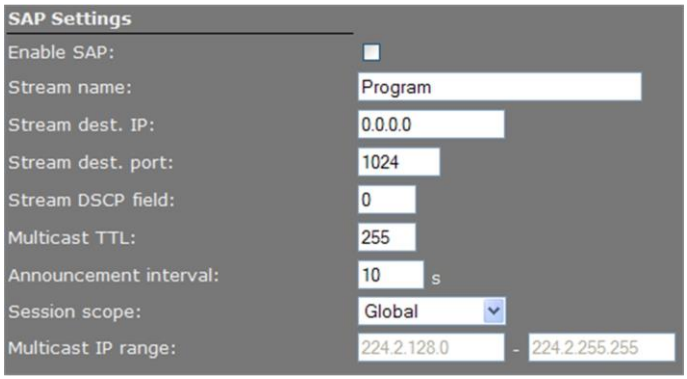
11.3.3.4 RTSP Transmitter



Video > Encoder # > Advanced > RTSP Transmitter

Item	Description
DSCP field	Range: [0...63]. DSCP (Differentiated Services Code Point) uses the first 6 bits of the ToS (Type of Service) field in the header of IP packets for packet classification purposes. The bit pattern in the field indicates the type of service and forwarding behavior at the next node. With 26 bits, up to 64 network service types can be defined. *RFC 2724* (*http://www.ietf.org/rfc/rfc2474.txt*) describes the Differentiated Services (DS) field and the DiffServ Code Point. See also the note on Differentiated Services later in this chapter.
Enable multicast	Activates the *Default multicast IP address* text box. The RTSP transmitter itself does not require enabling.
Default multicast IP address	Select *Enable multicast* (see above) to activate this check box. The "Invalid multicast address" warning disappears upon specification of a valid multicast address.
Default multicast port	Port number for multicast sessions.

11.3.3.5 SAP Settings



Video > Encoder # > Advanced > SAP Settings

SAP announcer

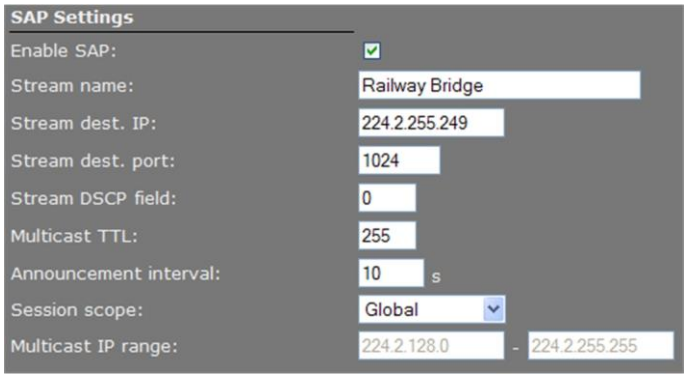
The HSD62x includes a SAP announcer. The Session Announcement Protocol is used to advertise that a media stream generated by the HSD62x is available at a specific multicast address and port.

The HSD62x can send SAP multicast streams for its H.264, MPEG-2/4, and audio encoders. The video streams include audio if audio is enabled on the Audio webpage and if the multicast IP range is the same as for video. Note that audio in itself can also be received as a separate stream. For more information about SAP, see the note later in this chapter.

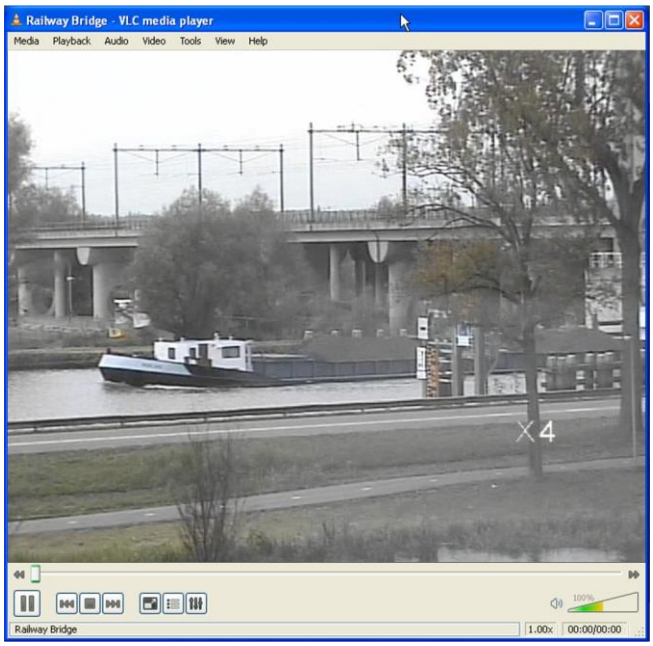
Item	Description
Enable SAP	When selected, session announcements are sent at the frequency determined by the Announcement interval parameter and the media stream is transmitted to the multicast IP address specified in the Stream dest. IP address box.
Stream name	Enter a descriptive name to identify the media stream.
Stream dest. IP	Enter the multicast IP address the media stream is to be sent to. The address must be within the range defined by the Multicast IP range parameter.
Stream dest. port	The destination port number. Default: 1024.
Stream DSCP field	Range: [0…63]. See the note on DSCP.
Multicast TTL	Range: [0...127]. Specify the number of routers (hops) that multicast traffic is permitted to pass through before expiring on the network.
Announcement interval	Determines the frequency of announcements.
Session scope	*Global*, the default session scope, sets the *Multicast IP range* parameter to 224.2.128.0 - 224.2.255.255 (IPv4 global scope sessions). A SAP listening application will recognize the global scope and automatically listen for SAP announcements at the 224.2.127.254 multicast IP address. The *Administrative* session scope allows you to enter a custom IP range within the 239.0.0.0 - 239.255.255.255 (IPv4 administrative scope sessions) range. For an Administrative session scope, the multicast address for SAP announcements will be set to the highest address in the relevant administrative scope. For example, for a scope range of 239.16.32.0 - 239.16.33.255, the IP address 239.16.33.255 is used for SAP announcements.
Multicast IP range	See Session scope.

To configure SAP settings, do the following

1. In the SAP settings section, select **Enable SAP**.
2. Enter a stream name.
3. In the Session scope list, select **Global** or **Administrative**.
4. If you selected *Administrative* in the previous step, specify the Multicast IP range.
5. Enter the Stream Destination IP address and the port number.
   The IP address must be within the scope range displayed for the Multicast IP range parameter.
6. Enter/modify the values for Stream DSCP field, Multicast TTL, and Announcement Interval, if desired.
7. Click **Save**.
   The video stream can now be viewed in a media player, such as QuickTime or VLC.



SAP example settings



HSD62x SAP network stream opened via VLC Playlist

11.3.3.6 Meta data insertion

Enabling

All HSD62x encoders can be configured to include meta data in the video streams they generate. The insertion of meta data is enabled by setting an interval via the Advanced Settings of the encoder. A meta data message is added to the stream as a block of data with a fixed format (see examples below). The messages can contain user data, product info, and status info.

Note: This section provides a general explanation of meta data insertion as implemented in Siqura products. The unit described in this manual, may or may not feature all of the media (e.g. audio, contact closure) and encoding formats included below.

User data message

For MPEG-2 and MPEG-4, User data is preceded by the User data header (00 00 01 B2):

0x00	0x00	0x01	0xB2	User data message

For MJPEG, these (for the rest identical) messages are inserted as comment field (FF FE):

0xFF	0xFE	Size (MSB)	Size (LSB)	User data message

For H.264, these (for the rest identical) messages are inserted as SEI NAL-unit (0x06), marked as type User Data Unregistered (0x05):

0x06	0x05	Size	UUID (16 bytes)	User data message

Product info message

The Product info message (always inserted) is used to identify the source of a specific video stream. The data ID is 0x00, with the message in the following layout.

'O'	'P'	'T'	'C'	0x00	Prod. name (ASCII)	0x80	Serial nr (ASCII)	0x80	SW version (ASCII)	0x80

Status info message

This message contains all relevant status messages, related to the video stream or codec. The data ID is 0x01, with the message in the following layout.

'O'	'P'	'T'	'C'	0x01	Status1	Status2	Status3	Status4	(future expansion possible)

Status 1	Video status
Bit 0 (lsb)	Video loss on input
Bit 1	Black/white video
Bit 2	VMD alarm
Bit 3	Tampering alarm
Bit 4	Image quality alarm
Bit 5	(for future use, will be '0')
Bit 6	(for future use, will be '0')
Bit 7 (msb)	Fixed '0'

Status 2	General status
Bit 0	Reserved for Temperature alarm
Bit 1	(for future use, will be '0')
Bit 2	(for future use, will be '0')
Bit 3	(for future use, will be '0')
Bit 4	(for future use, will be '0')
Bit 5	Reserved for Audio present
Bit 6	Fixed '1'
Bit 7	Fixed '0'

Status 3	CC status (part 1)
Bit 0	CCin-1
Bit 1	CCin-2
Bit 2	CCin-3
Bit 3	CCin-4
Bit 4	CCin-5
Bit 5	CCin-6
Bit 6	CCin-7
Bit 7	Fixed '0'

Status 4	CC status (part 2)
Bit 0	CCin-8
Bit 1	(for future use, will be '0')
Bit 2	(for future use, will be '0')
Bit 3	(for future use, will be '0')
Bit 4	(for future use, will be '0')
Bit 5	(for future use, will be '0')
Bit 6	Fixed '1'
Bit 7	Fixed '0'

User defined text message

This message can be defined and enabled by the user, using the Siqura Programming Interface API, for example. There is no maximum limit on the amount of characters. Considering that this data is part of a video stream, the maximum should be reasonable.

11.3.3.7 Notes

Note on Differentiated Services: Differentiated Services (DiffServ, or DS) is a method for adding QoS (Quality of Service) to IP networks. In routed networks, critical network traffic such as video and audio streams, which require a relatively uninterrupted flow of data, can get blocked due to other traffic. DiffServ can be used to classify network traffic and give precedence - i.e. low-latency, guaranteed service - to high-priority traffic, while offering best-effort service to non-critical traffic such as file transfers or web traffic.
Each stream has a DSCP (Differentiated Services Code Point) field in the IP header. Routers will identify the network service type in the DSCP field and provide the appropriate level of service. Low-latency service can be realized, for example, through priority queuing, bandwidth allocation, or by assigning dedicated routes.

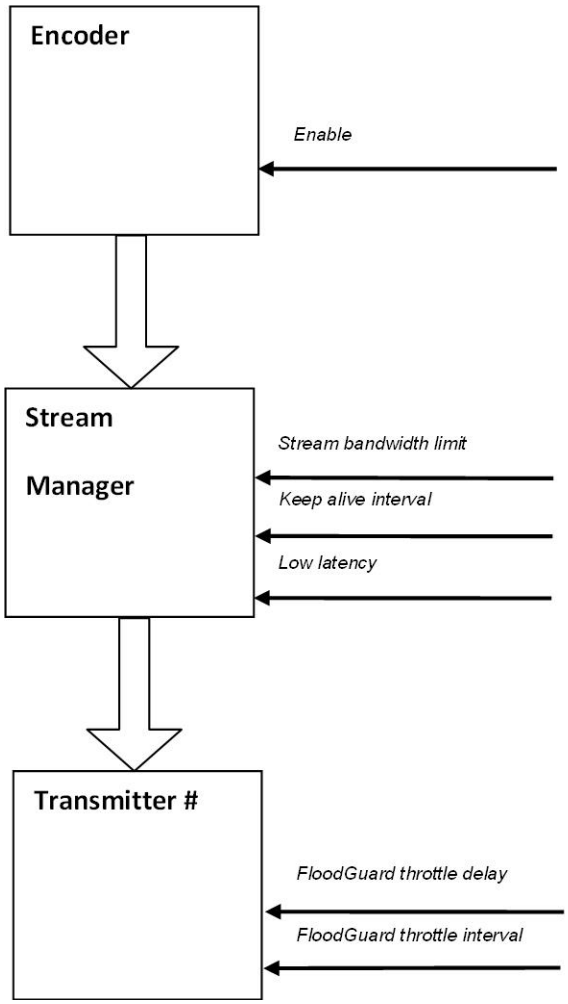
Note on RTP and RTCP: The Real-time Transport Protocol (RTP) is designed for end-to-end real-time, audio or video data flow transport. It is regarded as the primary standard for video/audio transport over multicast or unicast network services. RTP does not provide guaranteed delivery, but sequencing of the data makes it possible to detect missing packets. It allows the recipient to compensate for breaks in sequence that may occur during the transfer on an IP network. Error concealment can make the loss of packets unnoticeable.
RTP is usually used in conjunction with the Real-time Transport Control Protocol (RTCP). RTP carries the media streams. RTCP provides reception quality feedback, participant identification and synchronization between media streams.

Note on the Session Announcement Protocol (SAP): SAP, defined in *RFC 2974* (see RFC 2974 - *http://www.ietf.org/rfc/rfc2974.txt*), is a protocol for advertising multicast session information. A SAP announcer periodically broadcasts announcement packets which include the session description information of multicast sessions presented by the announcer. SAP uses the Session Description Protocol (SDP) as the format of the session descriptions. The announcement is multicast with the same scope as the session it is announcing, ensuring that the recipients of the announcement are within the scope of the session the announcement describes. SAP listening applications can listen to the announcements and use the information to construct a guide of all advertised sessions. This guide can be used to select and start a particular session. The SAP announcer is not aware of the presence or absence of SAP listeners.

Note on FloodGuard: FloodGuard is a Siqura™ proprietary stream control mechanism that can be enabled/disabled independently for each video and sampled data transmitter. FloodGuard throttles the transmitter when it no longer receives control messages from the receiver, thereby preventing the transmitter from flooding the network.

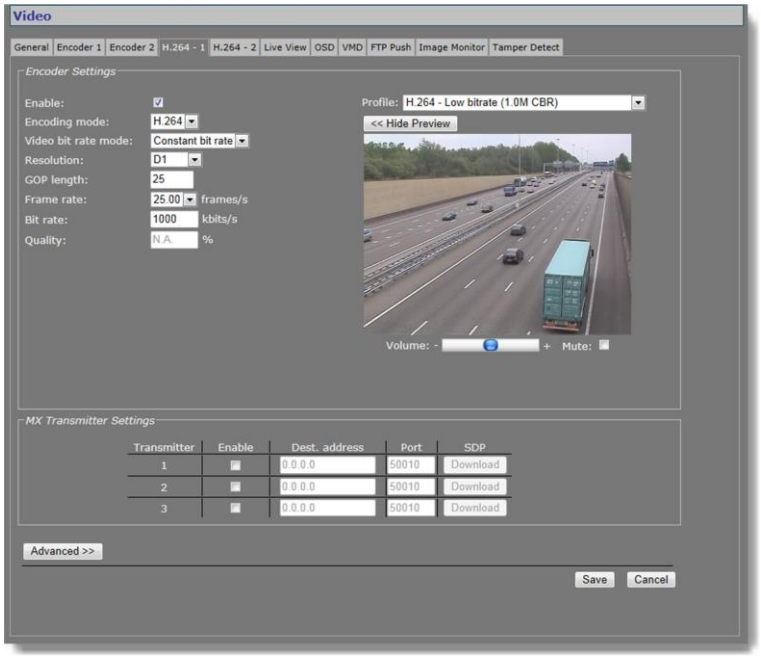
FloodGuard only works when enabled on both the transmitter and the receiver, and when the transmitter sends to a unicast address.

When a transmitter is enabled, it opens a control receive port with the port number equal to its source port number + 1. This port listens for control packets from the destination receiver. When no FloodGuard packets come in during the time set for the *FloodGuard throttle delay*, the receiver is expected to have disappeared (powered off, receiver disabled, network problem, etc.) and the stream is 'throttled'. In throttled mode the transmitter - in order to contact the intended receiver (again) - sends empty packets into the network at an interval determined by the *FloodGuard throttle interval* parameter. After reception of a valid FloodGuard packet the transmitter immediately resumes streaming.



Stream Manager and FloodGuard

11.4 H.264 - 1



Video > H.264 - 1

11.4.1 Encoder Settings

Item	Description		
Enable	All encoders are enabled by default. Use this check box to disable/re-enable this specific encoder.		
Encoding mode	*H.264*.		
Video bit rate mode	Controls variations in bit rates. For a concise explanation, see "Note on Encoder Settings".		
	H.264 encoding mode supports the following bit rate modes.		
	Constant quality	Keeps the image quality constant, with varying network load. See *Constant Quality Mode (CQM) configuration* (below) for Siqura's recommended strategy for controlling image quality.	
	Constant bit rate	Keeps network load constant at the cost of varying image quality. Frames may be skipped.	
Resolution	The following resolutions are supported.		
	resolution (h x v)	**PAL**	**NTSC**
	D1	720x576	720x480
	2/3 D1	480x576	480x480
	1/2 D1	352x576	352x480
	2CIF	720x288	720x240
	4CIF	704x576	704x480

Item	Description		
	CIF (top field only)	352x288	352x240
	QCIF	176x144	176x120
	VGA (640x480) and QVGA (320x240) are also supported. For more information on CIF resolutions, see below.		
	Note: The HSD62x will simultaneously handle dual H.264 encoding and dual MPEG-2/4 encoding at full frame rate, and Live View encoding at 5 frames per second. Setting Encoders 1 and 2 to perform MPEG-2/4 encoding in D1 resolution at the same time may overtax the hardware. The total output bandwidth, including streams controlled by RTSP, and those enabled through SAP, should not exceed 25 Mb/s.		
GOP length	Distance in frames between two I-frames.		
Frame rate	Selectable rates are determined by the video mode (PAL, NTSC) set on the General tab. PAL: 1-25 fps; NTSC: 1-30 fps.		
Bit rate	Constant bit rate mode only	The speed of the digital transmission - that is, the amount of information transferred/processed per unit of time.	
Actual bit rate	Constant quality mode only	This field is dynamically updated with the current bit rate to provide feedback on the bit rate that is used on average with the current *Quality* setting.	
Quality	Constant quality mode only	Reflects the amount of compression. Generally speaking: the higher the quality setting, the lower the compression ratio and the more bits are consumed. This means a trade-off has to be found between the desired quality level and available bandwidth.	
Profile	Preset combinations of settings for specific purposes. When a profile has been selected, changing one of its defined parameters sets the Profile box to '--', to indicate that a custom profile has been configured. When a freely chosen parameter value combination matches a preset profile, the name of the profile shows in the Profile box.		
Show Preview>>	Click to view live images and see the effect of the current settings.		
<<Hide Preview	Closes the preview. This may improve webpage responsiveness.		
Volume	Move the slider to control audio volume.		
Mute	Select/clear this box to mute/unmute audio.		

Note on CIF resolutions: 2CIF, CIF, QCIF use only one of the two frame fields. When CIF-encoded pictures are displayed on a monitor, the decoder simulates the second field (by extrapolation from the first field) in order to present two frame fields. CIF is mostly used for recording purposes, as a compromise between good video quality and storage capacity needed.

11.4.1.1 Constant Quality Mode configuration

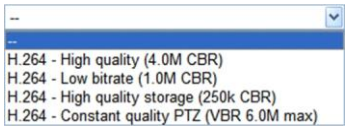
Constant Quality mode (CQM) can be used in situations with intermittent increases of movement in camera images. This mode provides better pictures when quickly panning a PTZ camera, for example. Siqura recommends the following strategy for Constant Quality mode configuration.

To configure CQM settings

1. In *Encoder Settings*, open the **Video bit rate mode** list, and then select **Constant quality**.
2. With the video source connected and the encoder enabled, go to the *Quality* field and set the desired quality (range: [0 ... 100%]), aided by the visual feedback in the Preview.
3. Press **Save** to store your settings.
   The Actual bit rate field is dynamically updated with the current bit rate.
4. Determine if the average bit rate used with the current *Quality* setting is acceptable. If not, modify the *Quality* setting.
5. To set the upper limit for the bit rate, open the **Advanced Settings** section and use the *CQM max bit rate* field to specify the maximum bit rate.
   Generally, it is not necessary to change the default setting of 6000 kbit/s, unless there are physical limitations on the network.
6. Press **Save** to store your settings.

11.4.1.2 Profiles

To facilitate the configuration of H.264 encoding settings, the Profile list offers a number of profiles - that is, combinations of settings for specific purposes.



H.264 Profile list

The following table lists parameter settings for each profile.

Profile	Settings
H.264 - High quality - Camera (4.0M CBR)	Max bit rate: n/a Bit rate: 4000 kbit/s Mode: Constant bit rate Quality: n/a Resolution: D1 GOP: 25 Frame rate divider: 1 Stream bandwidth limit: 20000 kbit/s
H.264 - Low bit rate - Camera (1.0M CBR)	Max bit rate: n/a Bit rate: 1000 kbit/s Mode: Constant bit rate Quality: n/a Resolution: D1 GOP: 25 Frame rate divider: 1 Stream bandwidth limit: 20000 kbit/s

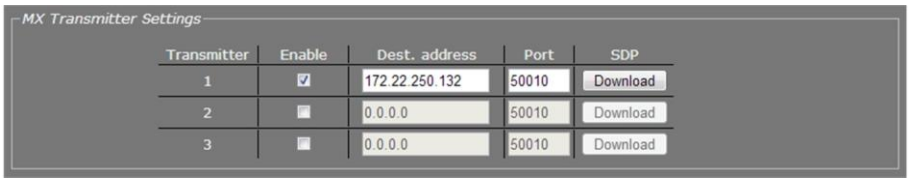
Profile	Settings
H.264 - High quality - Storage (250K CBR)	Max bit rate: n/a Bit rate: 250 kbit/s Mode: Constant bit rate Quality: n/a Resolution: 2 CIF GOP: 25 Frame rate divider: 2 Stream bandwidth limit: 20000 kbit/s
H.264 - High quality - PTZ (VBR 6.0M max)	Max bit rate: 6000 kbit/s Bit rate: n/a Mode: Constant quality Quality: 70 Resolution: D1 GOP: 25 Frame rate divider: 1 Stream bandwidth limit: 20000 kbit/s

11.4.1.3 Parameter value combinations

Set sensible combinations of video bit rate mode, resolution, GOP length, and frame and bit rates. When you set and save these values, inappropriate value combinations are 'corrected' by automatic selection of the closest suitable combination.

Important: If in doubt about the effects of specific encoder settings, you are advised to select the profile offering the closest match to your required application.

11.4.2 MX Transmitter Settings and making video connections



MX Transmitter Settings: destination address can be unicast or multicast

To make a video connection

1. Per stream, set the destination IP addresses and port numbers (even).
2. Enable the stream, as shown in the figure above.
   These settings, in combination with decoder settings, can serve to make links. If in an H.264 video decoder a source IP address and port number corresponding to a multicast address have been set, or if it holds the encoder IP address and the destination port number, a video link is established if the stream for that destination is enabled - that is, the box in the 'Enable' column is selected.
3. To save the changes, click **Save**.

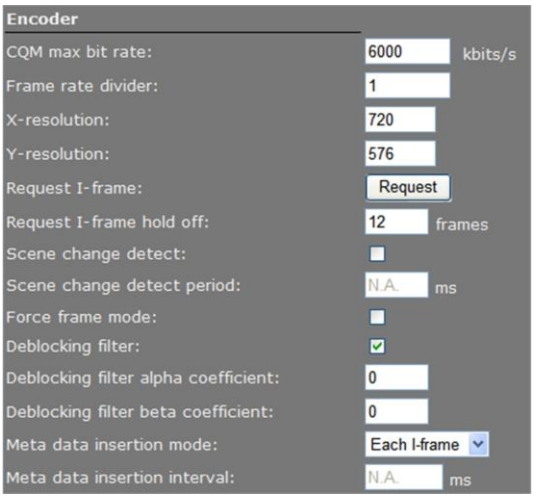
SDP download

Use the SDP Download button to download a Session Description Protocol (SDP) file from the encoder. SDP files contain streaming media initialisation parameters and properties. An SDP file does not deliver media itself but through file association the media stream can be opened in media players such as QuickTime and VLC. You can also use the SDP file to specify the URI in your web browser.

11.4.3 Advanced

Important: If in doubt about these settings, do *not* change the default values.

11.4.3.1 Encoder



Video > H.264 > Advanced > Encoder

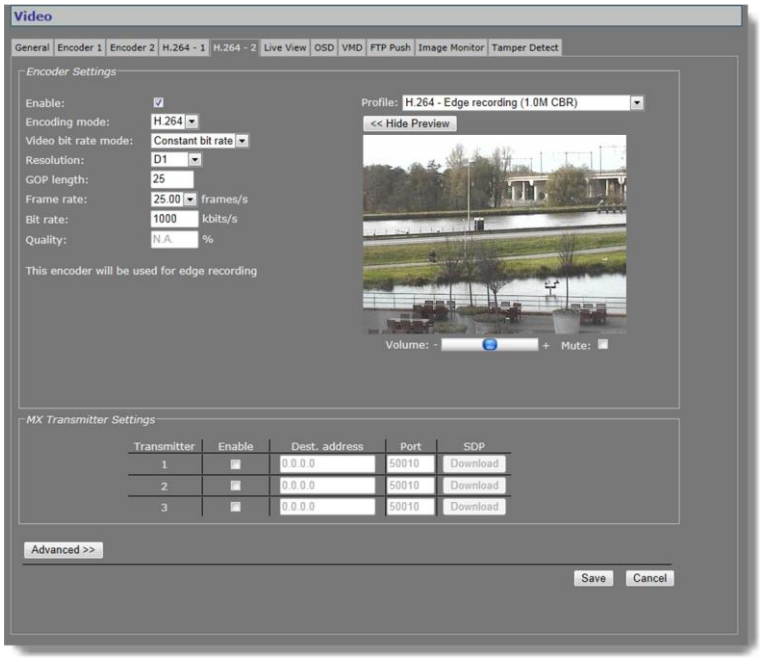
Item	Description
CQM max bit rate	Available in *Constant quality* mode (CQM). Use this setting to set the maximum bit rate for a given picture quality configured in the Encoder Settings section.
Frame rate divider	Relates to the frame rate configured in the Encoder Settings section.
X-resolution	Variables that enable you to freely set picture resolution instead of using the resolution presets in the Encoder Settings section.
Y-resolution	
Request I-frame	When joining a multicast stream in the middle of a long GOP, requesting an I-frame will speed up response time, i.e. image display will start sooner.
Request I-frame hold off	Range: [0…255] frames. Requesting (too) many I-frames may add to latency. To prevent this, you can specify the distance in frames, starting after the previous I-frame, before another I-frame is sent upon request.
Scene change detect	Enables the scene detection algorithm. If enabled, the encoder can fully restart a new GOP with an I-slice and an instantaneous decoding refresh (IDR) picture, depending on image content.
Scene change detect period	Sets the minimum time between scene changes in milliseconds. This is a hold-off mechanism that prevents a scene change for the specified time, starting from the previous scene change.

Item	Description	
Force frame mode	If *Force frame mode* is enabled, the H.264 video stream is compressed and sent using entire frames (Frame mode). If disabled, the stream is compressed and sent using entire frames or the separate fields (Field mode).	
Deblocking filter	Enables the in-loop deblocking filter in the AVC encoder. H.264 encoding can handle portions of the video image in blocks of varying sizes which can be processed independently. The deblocking filter enhances image quality by smoothing block edges and reducing blocking distortion. Be aware, however, that applying the filter requires substantial processing power.	
Deblocking filter alpha coefficient	Set the alpha/beta coefficients of the deblocking filter. Entering experimental values for these coefficients may help you in achieving optimal image quality.	
Deblocking filter beta coefficient		
Meta data insertion mode	Determines the method used to add meta data to the stream. For details, see the section on Meta Data Insertion.	
	Disabled	No meta data added to the stream.
	Fixed interval	Activates *Meta data insertion interval* parameter (below).
	Each I-frame	Data block is added after each I-frame. The interval is determined by the GOP length, therefore.
Meta data insertion interval	Range: [100-10000] ms. Sets the (fixed) interval at which meta data is added to the stream. Activate this parameter by setting *Meta data insertion mode* (see above) to *Fixed interval*.	

11.4.3.2 Stream Manager, Transmitter #, RTSP Transmitter, and SAP

Configuring Stream Manager, Transmitter #, RTSP Transmitter, and SAP settings for H.264 encoding is done in the same way as for Encoders 1 and 2. For more information, see the description of the Advanced Settings for these encoders.

11.5 H.264 - 2



Video > H.264 - 2

11.5.1 Edge recording

Configuring H.264 - 2 encoder settings is done in the same way as for encoder H.264 -1. It is important to bear in mind, however, that edge recording uses video generated by the H.264 - 2 encoder and that this requires specific *Video bit rate*, *GOP length*, and *Bit rate* settings.

Important: If you change these settings, edge recording may become impossible.

Warning: Incorrect encoder settings for edge recording

To configure settings for edge recording

1. Select **Enable** to enable the encoder.
2. On the **Profile** list, select **H.264 - Edge recording**.
3. Click **Save**.

   This creates the following settings.

   - Video bit rate mode: Constant bit rate
   - GOP length: 25
   - Bit rate: 1000 kbit/s

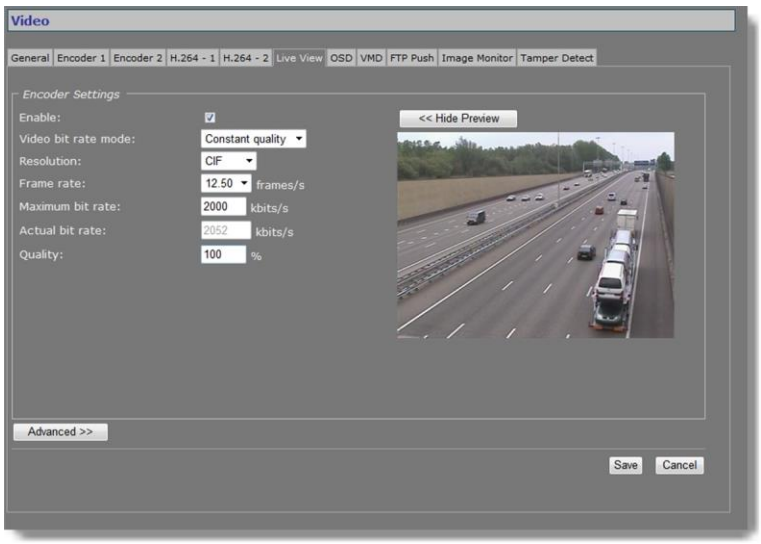
These settings are also the out of the box factory-default settings for the H.264 - 2 encoder. If they are no longer correct just select the *H.264 - Edge recording* profile to restore the proper settings.

Custom settings

If you need to apply custom settings, you can do so with the following restrictions.

- Video bit rate mode: always set to *Constant bit rate*.
- GOP length: ≥ 25
- Bit rate: ≤ 1000 kbit/s
- Resolution: CIF (recommended)

11.6 Live View



Video > Live View

11.6.1 (M)JPEG output

The HSD62x provides multiple (M)JPEG output methods.

- To transport JPEG over **HTTP** and/or to use the Live View previews in the webpages, enable the Live View encoder and configure its settings.
- To enable and configure **UDP**/MJPEG streaming, go to the Encoder 1/2 tab, select MJPEG encoding mode and configure settings.
- To activate the uploading of JPEG images to an FTP server, configure the required settings on the FTP Push tab and the Event Management page.

11.6.2 Encoder Settings

Item	Description	
Enable	All encoders are enabled by default. Use this check box to disable/re-enable this specific encoder.	
Video bit rate mode	Controls variations in bit rates.	
	Constant quality	Keeps the image quality constant, with varying network load. The quality is determined by the value set for the *Quality* parameter (see below).
	Constant bit rate	Keeps network load constant at the cost of varying image quality. Frames may be skipped.
Resolution	Set sensible combinations of mode, resolution, frame rate and (maximum) bit rate. It is advised to limit MJPEG encoding to 5 fps when the HSD62x is also handling MPEG-2/4 encoding with 1xD1 and 1xCIF or 2CIF at full frame rate.	
Frame rate		
(Maximum) bit rate		
Actual bit rate	Constant Quality Mode (CQM) only	This field is dynamically updated with the current bit rate to provide feedback on the bit rate that is used on average with the current *Quality* setting.

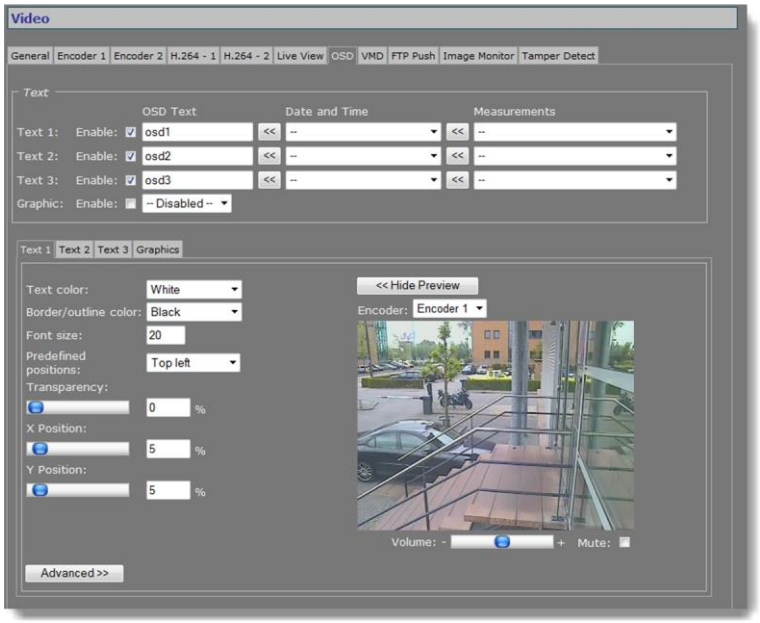
Item	Description	
Quality	Constant Quality Mode (CQM) only	Reflects the amount of compression. Generally speaking: the higher the quality setting, the lower the compression ratio and the more bits are consumed. This means a trade-off has to be found between the desired quality level and available bandwidth.
Show Preview>>	Click to view live images and see the effect of the current settings.	
<<Hide Preview	Closes the preview. This may improve webpage responsiveness.	

11.6.3 Advanced

Video > Live View > Advanced

Item	Description	
Frame rate divider	Relates to the frame rate configured in the Encoder Settings section.	
X-resolution	Variables that enable you to freely set picture resolution instead of using the resolution presets in the Encoder Settings section.	
Y-resolution		
Meta data insertion mode	Determines the method used to add meta data to the stream. For details, see the section on Meta Data Insertion.	
	Disabled	No meta data added to the stream.
	Fixed interval	Activates *Meta data insertion interval* parameter (below).
	Each frame	Data block is added after each frame.
Meta data insertion interval	Range: [100-10000] ms. Sets the (fixed) interval at which meta data is added to the stream. Activate this parameter by setting *Meta data insertion mode* (see above) to *Fixed interval*.	

11.7 OSD



Video > OSD

11.7.1 IP video server board OSD versus camera zoom block OSD

The HSD62x camera features the following two on-screen displays.

- Programmable on-screen display facilities, as shown in the above figure, that are generated by the IP server board. These facilities are described in this section.
- On-screen display facilities governed by the camera zoom block and handled through the PTZ Control Panel on the Live Video page or via an external PTZ controller. These facilities are described in depth in the chapters covering the On-Screen Menu.

Important: The OSD controls generated by the IP server board and those generated by the camera zoom block are independent of one another. Text or graphics added or edited in one cannot be modified or deleted in the other.

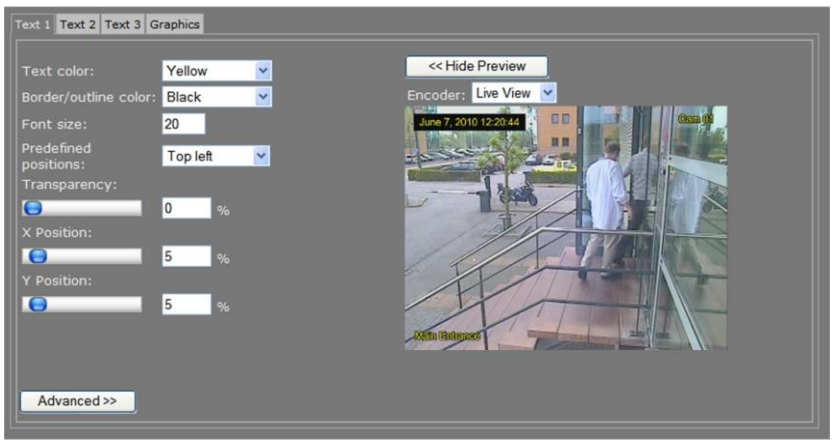
11.7.2 IP server board OSD facilities

Using the IP server board OSD facilities, one graphic and up to three OSD text bars can be displayed, each of which can be independently configured. Visual feedback is provided in the preview.

11.7.3 Text Settings

Item	Description
Enable	All OSD objects can be enabled and configured separately. To (temporarily) remove a bar or graphic from the screen, clear the Enable check box.
OSD text	The text to be displayed. Maximum: 255 characters. Text is displayed in a single line. The number of characters visible on screen is determined by the font size and the space offered by the screen line.
Date and Time	Select a format from the list and click the Append button to add the information to the OSD text box.
Measurements	Select a measurement from the list and click the Append button to add the information to the OSD text box.
Graphic	Graphics that have been uploaded to the module (see Graphics tab, Advanced settings) can be selected from the list and enabled.

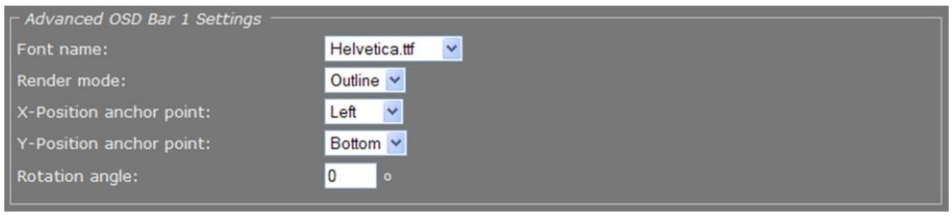
11.7.4 Text



Video > OSD >Text 1, with 3 OSD bars in the preview.
Render modes: 'Border' (top left) and 'Outline' (top right & bottom left)

Item	Description
Text color	Changes made here and in the other fields are immediately written into the device and reflected in the preview.
Border/outline color	
Font size	Range: [0...256].
Predefined positions	Presets for positioning the OSD object.
Transparency	Move the slider or type a percentage.
X Position	Variables that enable you to freely position the object, instead of using the presets. Drag the sliding buttons or enter a percentage. When a preset has been selected, changing one of its defined parameters sets the *Predefined positions* box to '--', indicating that a custom position has been configured.
Y Position	
Show Preview>>	Click to view live images and see the effect of the current settings.
<<Hide Preview	Closes the preview. This may improve webpage responsiveness.
Encoder	The encoder handling the images seen in the preview.

11.7.4.1 Advanced



Video > OSD > Text 1 > Advanced > Advanced OSD Bar 1 Settings

Item	Description
Font name	Offers a selection from default and uploaded fonts (see Font Management).
Render mode	*Outline* or *Border*.
X-Position anchor point	Variables that enable you to shift the OSD object relative to the anchor point.
Y-Position anchor point	
Rotation angle	Background size automatically adjusts to text dimensions when a bar is rotated.

Video > OSD > Text 1 > Advanced > Font Management

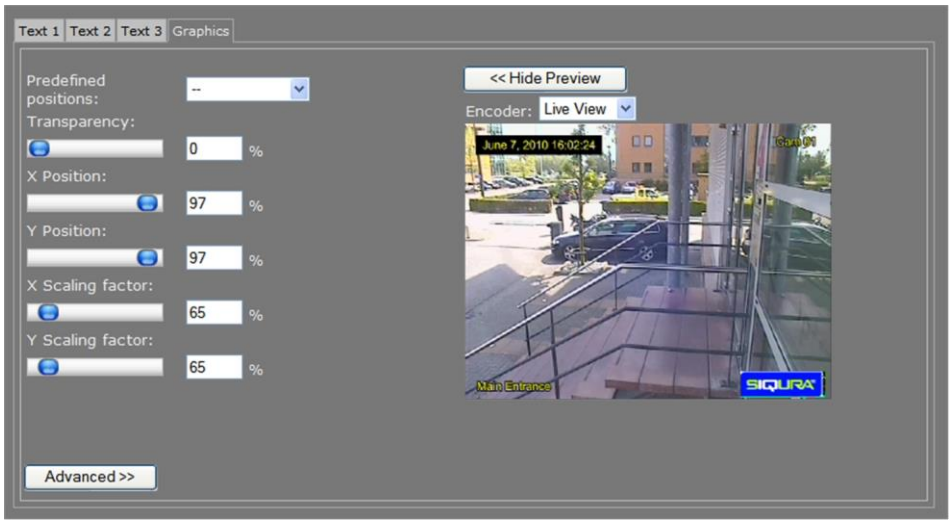
To upload a font

1. In the Font management section, click **Browse**.
   The Open dialog box displays.
2. Browse to the folder containing the font to be uploaded.
3. Select the correct file (.ttf extension), and then click **Open**.
   The file appears in the File text box on the web page.
4. To start the upload, click **Add**.
   The new font is added to the Font list and to the Font name list in the Advanced OSD Bar # Settings section.

To remove a font

1. In the Font management section, select the font.
2. Click the **Del** button.

11.7.5 Graphics



Video > OSD > Graphics, with 3 OSD bars and a graphic (bottom right) in the preview

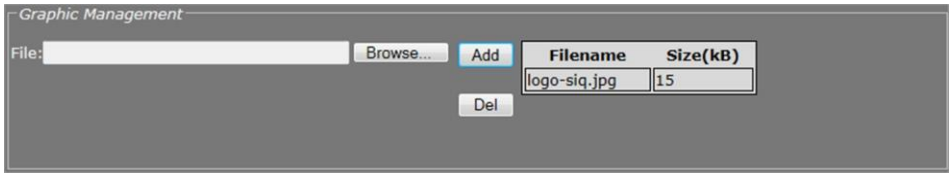
The Graphics tab enables you to manage graphics, and scale and position a selected graphic on your screen.

Item	Description
Predefined positions	Presets for positioning the OSD object.
Transparency	Move the slider or type a percentage.
X-Position	Variables that enable you to freely position the object, instead of using the presets. Drag the sliding buttons or enter a percentage. When a preset has been selected, changing one of its defined parameters sets the *Predefined positions* box to '--', indicating that a custom position has been configured.
Y-Position	
X Scaling factor	Variables that enable you to freely configure the dimensions of the object.
Y Scaling factor	
Show Preview>>	Click to view live images and see the effect of the current settings.
<<Hide Preview	Closes the preview. This may improve webpage responsiveness.
Encoder	The encoder handling the images seen in the preview.

11.7.5.1 Advanced

Video > OSD > Graphics > Advanced > Advanced Picture Settings

Item	Description
X-Position anchor point	Variables that enable you to shift the OSD object relative to the anchor point.
Y-Position anchor point	
Animation speed scaling factor	Enables you to set the speed for an animated GIF graphic.



Video > OSD > Graphics > Advanced > Graphic Management

You can upload your own graphics with a maximum file size of 100 kB to the HSD62x. If necessary, use a picture resize tool to reduce the file size.

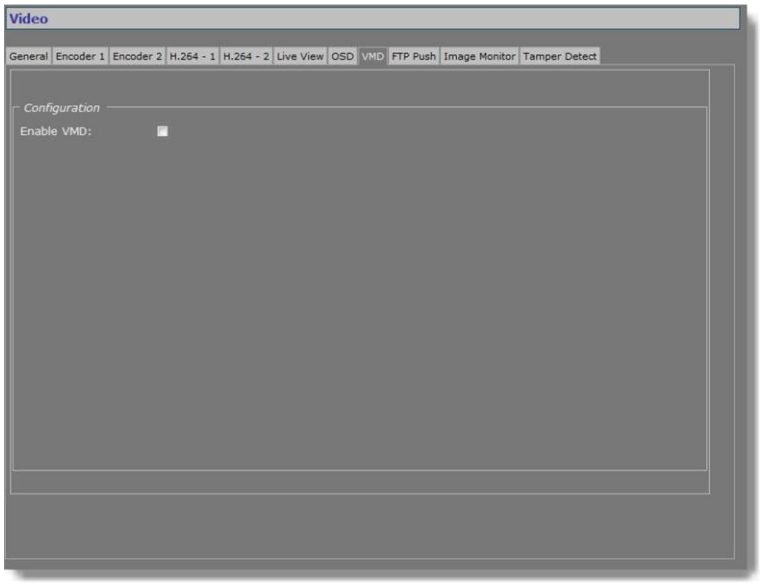
To upload a graphic

1. In the *Graphic Management* section, click **Browse**.
   The *Open* dialog box displays.
2. Browse to the folder containing the graphic to be uploaded.
3. Select a file with the correct file extension (.bmp, .gif, .jpg, jpeg), and then click **Open**.
   The file appears in the *File* textbox.
4. To start the upload, click **Add**.
   The graphic is added to the graphics list and to the *Graphic* drop-down list in the *Text* section.

To remove a graphic

1. In the *Graphic Management* section, select the graphic.
2. Click **Del**.

11.8 VMD



Video > VMD (disabled)

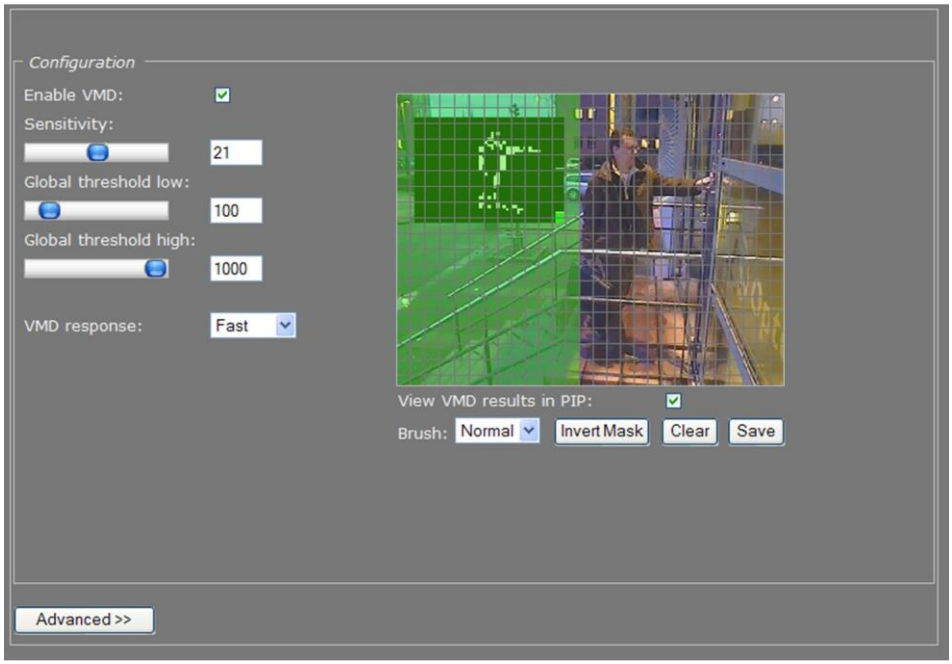
Video Motion Detection (VMD) enables the user to define a portion or portions of the screen and to detect picture changes there. These changes could be caused by motion or varying lighting, for example. Regions of less interest can be masked.

11.8.1 VMD startup

To start Video Motion Detection

1. On the Video page, click the **VMD** tab.
2. Select **Enable VMD** to activate the detection process.
   Depending on the current VMD settings, a VMD alarm will be generated on changes in the picture.

11.8.2 Configure detection parameters



Video > VMD > Configuration

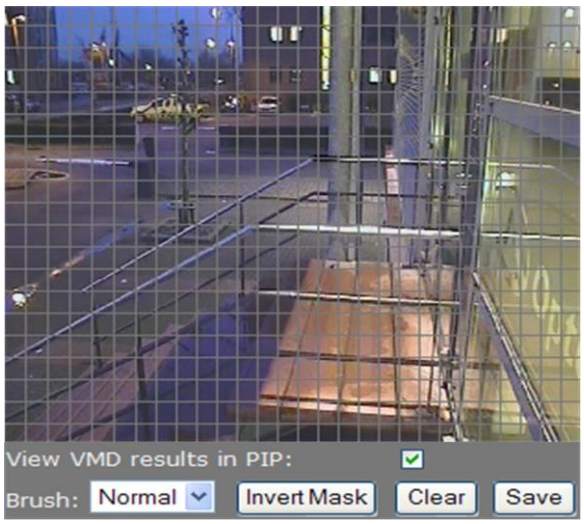
VMD enabled: Configuration section with controls, video picture, and motion detection inset, the latter with mask applied. The mask permits motion detection in the right half of the picture only, at the top of the stairs, so passers-by and cars would not be registered by the detector facility; neither will the details in the background (the trees are reflected in the window pane though, and this could be masked separately).

Item	Description
Enable VMD	Expands the Configuration section, as shown in the above figure.
Sensitivity	This setting relates to local detection levels: local change is only detected if its level exceeds a certain value. The sensitivity setting can be used to eliminate unwanted ('false') triggering (e.g. caused by background noise or constant local movement).
Global threshold low	These settings relate to the summed amount of change within fully or partly unmasked portion(s) of the screen; a value between the two thresholds gives rise to a corresponding VMD alarm. The level of this alarm can be set (A-N) using separate Siqura software.
Global threshold high	
VMD response	*Fast* or *Filtered*. Filtering is used to suppress a single peak as false triggering.

11.8.3 Set the mask

- **To set a mask**
  - To edit the mask, click on the grid that is put over the image.
    One or more mask elements at, and possibly around, that position, are produced.
  - Hold the standard mouse button and drag, to 'brush' (i.e. mask) larger areas, with a 'Normal', 'Small', or 'Large' brush.
  - Use the 'Invert Mask' button to reverse a selection.
  - Hold the right mouse button and drag, to erase mask areas.
  - Use the 'Save' button to store the mask in the unit.

- **To delete a mask**
  - Press the **Clear** button.

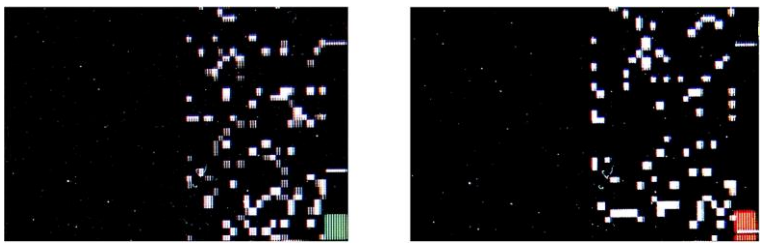


Masking grid

Item	Description	
Brush	*Normal*	Allows grid elements to be accessed in 4-element groups.
	Large	Allows grid elements to be accessed in 16-element groups.
	Small	Allows grid elements to be accessed one at a time.
Invert Mask	Enables you, for example, to start creating a mask by marking the (smaller) area(s) you *do* wish to monitor and then use this button to reverse the selection.	
View VMD results in PIP	Inserts the Video Motion Detection inset providing feedback on current VMD settings.	
Clear	Clears the mask.	
Save	Makes the current mask effective and stores it for later use.	

11.8.4 VMD detection window

The VMD detection window shows up as a small picture within the larger picture. Depending on the thresholds set, the motion detection bar on the right side of the picture shows up green or red (see figures below), the latter indicating a VMD alarm will be generated. In the pictures, the upper and lower thresholds are shown as two white markers. If the bar runs over the highest marker, it will turn green again and there will be no alarm condition.

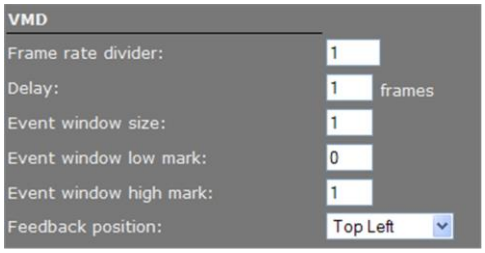


VMD detection windows, with mask applied to the left half of the window. The small white blocks indicate grid elements where change occurred above the sensitivity level. The summed change is reflected in the bars on the right, the green one (left) not reaching the lower threshold. The red one (right picture) extending past it, since this threshold is set much lower.

11.8.5 VMD alarm

If movement is detected, a module alarm (VMD) will be generated and sent out over the network using the (unsolicited) notification mechanism. Such alarms can be caught using appropriate software.

11.8.6 Advanced

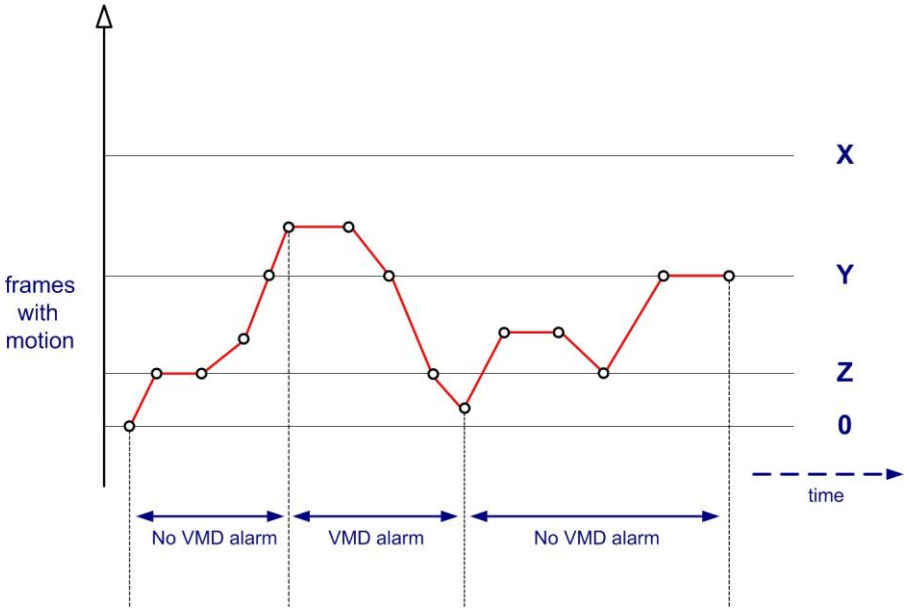


Video > VMD > Advanced > VMD

Item	Description
Frame rate divider	Range: [1...100]. Used to determine the number of frames used for VMD. Only 1 divided by this value frames are evaluated.
Delay	Range: [1...10] frames. The delay in frames between the currently processed frame and the stored frame with which it is to be compared.
Event window size	Range: [1…32]. Number of frames evaluated at a time to determine if there is a VMD alarm.
Event window low mark	Range: [0…31]. Thresholds determining if there is a VMD alarm.
Event window high mark	
Feedback position	Enables you to position the detection window (not to be confused with an event window).

Note on Advanced VMD Settings: Motion is detected by comparing the current frame with a reference image (e.g. a previous frame) and calculating the difference between the two. The value you enter for the *Event window size* parameter determines how many frames are evaluated for VMD purposes at a time. Not all frames from the original video stream are used for VMD. Only *1 divided by the value set for the frame rate divider* frames are evaluated.

A VMD event becomes active when, within the Event window, the number of frames with motion exceeds a configurable value, the *Event window high mark*. After this, the VMD event will remain active until the number of frames with motion drops below another configurable value, the *Event window low mark*.

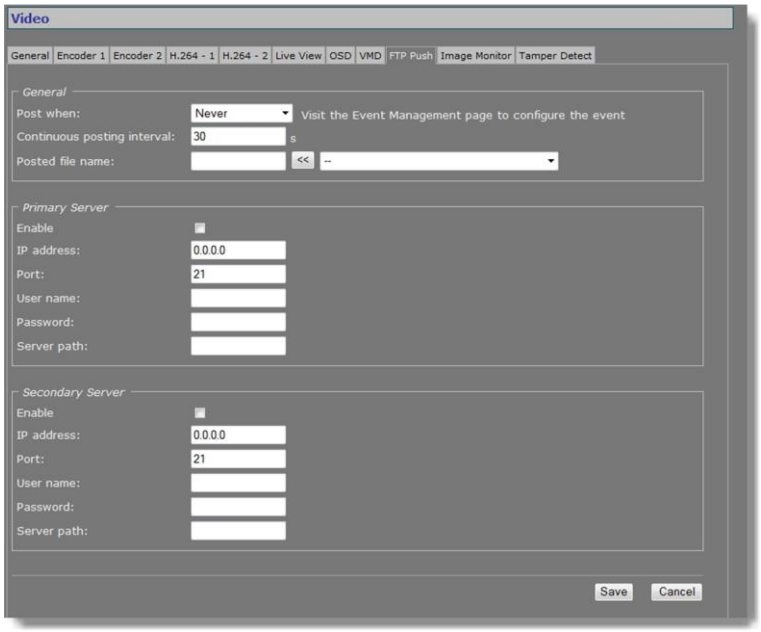


VMD Alarm: Event window high/low mark

X = Event window size
Y = Event window high mark
Z = Event window low mark

VMD alarm becomes active when in at least Y out of X frames motion is detected.
VMD alarm becomes inactive when in at least Z out of X frames *no* motion is detected.

11.9 FTP Push



Video > FTP Push

11.9.1 Post JPEG images

The HSD62x can be configured to upload images, generated by its Live View encoder, to an FTP server. Posting the files in JPEG format can be set to be continuous or event-triggered. On the Event Management page, one or more events can be associated with FTP Push.

11.9.2 General

Item	Description	
Post when	*Never*	No image posting
	Event On	Image is posted when configured event occurs.
	Event Off	Image is posted when configured event ceases.
	Event Changed	Images are posted when configured event occurs or ceases.
	Continuous	Posting not associated with any event. Images are sent continuously at the frequency set for the *Continuous posting interval* parameter.
Continuous posting interval	Range: [1-300] s. Applies to continuous posting only. Determines the frequency of image posts.	
Posted file name	Enter a descriptive name. Use the Append list and button (<<) to include extra information to identify the files. The "$", "#", and "@" symbols described below can also be typed directly after the name.	
Append list	Options to add information and file extension to the file name entered.	
	<UTC-Time/date>.jpg	Time/date. Appended as "_$.jpg".

Item	Description	
	<SeqNr>.jpg	Sequence number. Appended as "_#.jpg".
	<SeqNr>_<UTC-Time/date>.jpg	Sequence number and time/date. Appended as "_#_$.jpg".
	<SeqNr>_<Event State>.jpg	Sequence number and event state. Appended as "_#_@.jpg". Examples of event state: T=true, F=false.
	<UTC-Time/date>_<Event State>.jpg	Time/date and event state. Appended as "_$_@.jpg".

11.9.3 FTP server

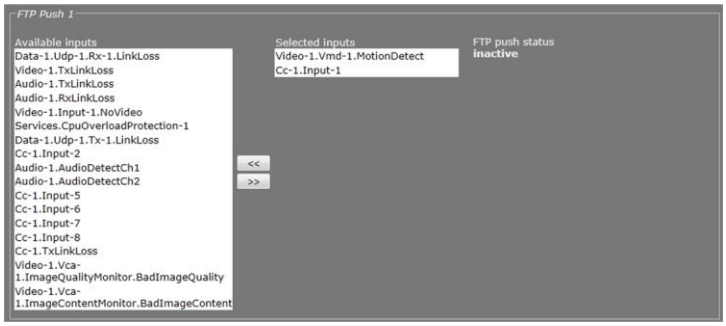
A target FTP server must hold a user account associated with the HSD62x. You can assign a primary server and a secondary server. Images are posted simultaneously to both the primary server and secondary server.

Video > FTP Push > Primary Server, example settings

Item	Description
Enable	Select or clear to respectively enable/disable the connection with this server.
IP address	IP address of the FTP server.
Port	The FTP protocol typically uses port 21 on the FTP server to listen for clients initiating a connection. Port 21 is also where the server is listening for commands issued to it.
User name	The authorization to access the FTP server.
Password	
Server path	Folder on the FTP server assigned to the FTP client. To be used, for example, if the client is not allowed to access the server root folder.

11.9.4 Event management

Having selected *Event On*, *Event Off*, or *Event Changed* as a trigger, do not forget to go to the Event Management page to associate one or more events with the FTP push.



Event Management > FTP Push 1. Two inputs associated with FTP push.

11.9.5 Monitor and troubleshoot FTP Push

You can monitor FTP push on the Measurements tab of the Status page. Measurements on this tab are continuously updated. In the FTP Push section, you can compare the number of incoming triggers with the number of succeeded posts.

FTP Push 1	
Nr of incoming triggers	23
Nr of succeeded posts, server 1	22
Last post status, server 1	OK
Nr of succeeded posts, server 2	0
Last post status, server 2	**N/A**

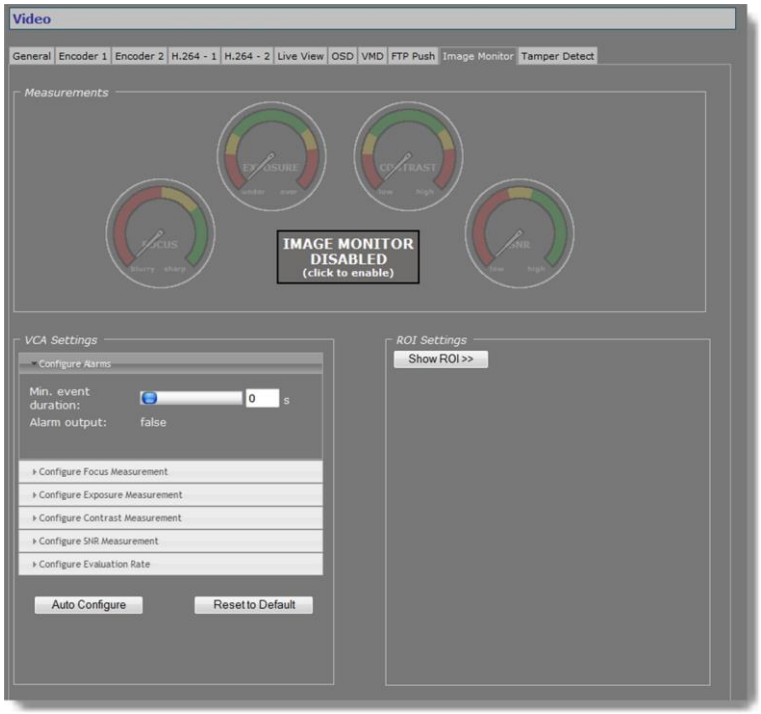
Status > Measurements > FTP Push 1

If you need to troubleshoot the file upload process, the messages reporting the last post status will in most cases point you to possible causes of problems.

FTP Push 1	
Nr of incoming triggers	154
Nr of succeeded posts, server 1	0
Last post status, server 1	ftpput: unexpected server response to STOR: 550 Filename invalid
Nr of succeeded posts, server 2	0
Last post status, server 2	**N/A**

Last post status: example of error message

11.10 Image Monitor



Video > Image Monitor

11.10.1 Image quality check

The Image Monitor can detect if images produced by the camera are still usable. It can give an indication of the performance of the camera and show whether or not it needs attention. A quality check is made against what is normally a good picture.

Examples of detectable occurrences:

- The camera is in focus during sunny days, but out of focus in low light situations.
- The initial daytime camera position seemed ok, but streetlights and spot lights affect the image during nighttime.
- The lens has got dirty.
- The iris control has got stuck.
- Camera failure.

11.10.2 Enable the Image Monitor

The Image Monitor can measure camera focus, exposure, contrast level, and SNR (Signal-to-Noise Ratio). The four measurements are disabled by default. You can enable them simultaneously or separately.

Note: Enabling/disabling a measurement also enables/disables the associated alarm.

To enable all measurements simultaneously

- In the *Measurements* section, click **IMAGE MONITOR DISABLED**.
  The four dials are activated, the pointers indicating the current measurements.

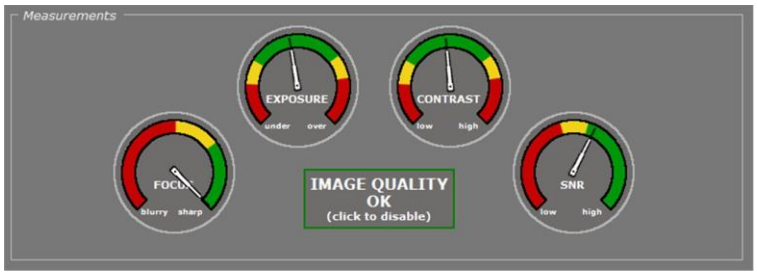


Image Monitor: all measurements enabled

To enable/disable individual measurements

1. In the VCA Settings section, click the accordion style menu labelled with the measurement you require.
   The settings of the selected measurement display.
2. Select/Clear the **Enable** box to enable or disable the measurement, respectively.

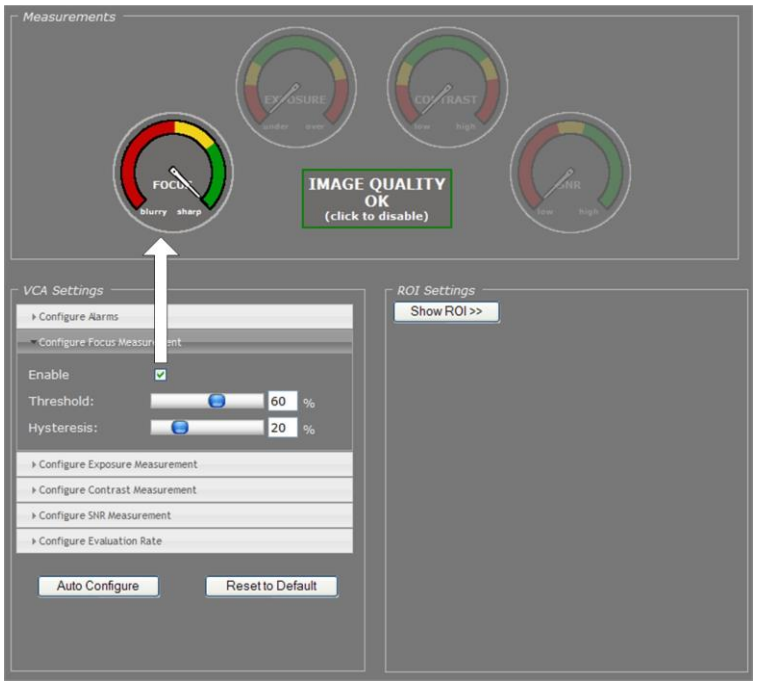
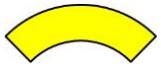


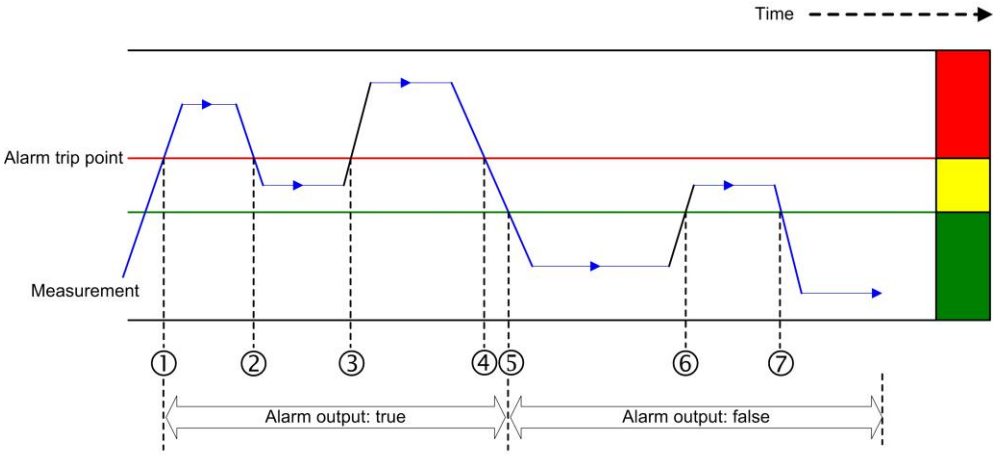
Image Monitor: FOCUS measurement enabled only

11.10.3 Dial legend

The coloured dials in the Measurements section provide a quick and easy glance at the health of the camera. You can fine-tune each measurement's alarm thresholds to your needs in the VCA Settings section.

Dial legend

	Error state.
	Hysteresis: the area where the alarm output is either "true" or "false" depending on the preceding alarm state, as illustrated in the figure below.
	Correct camera performance.



Hysteresis and alarm output

1. The Measurement rises above the trip point. After expiry of the delay set for the Min. event duration, the alarm is activated.
2. The Measurement drops into the Hysteresis area (i.e. the margin between incorrect and correct performance) but falls short of the "safe" area. The alarm is continued.
3. The Measurement re-enters the Error state area. The alarm continues.
4. The Measurements drops into the Hysteresis area. The alarm continues.
5. Camera performance is correct. The alarm is deactivated after expiry of the *Min. event duration*.
6. The Measurement rises into the Hysteresis area. The alarm trip point is not reached. Alarm output remains "false".
7. Camera performance is correct. Alarm output remains "false".

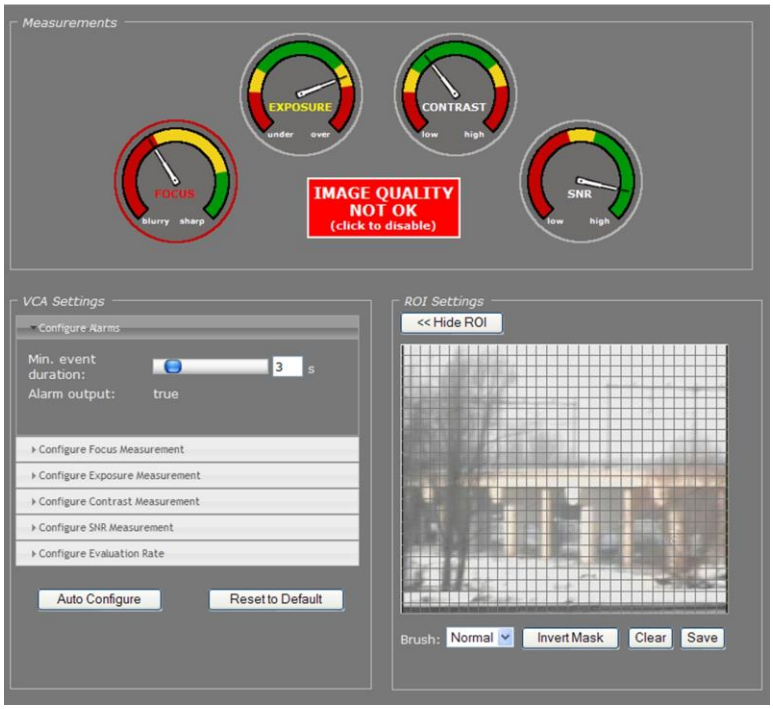
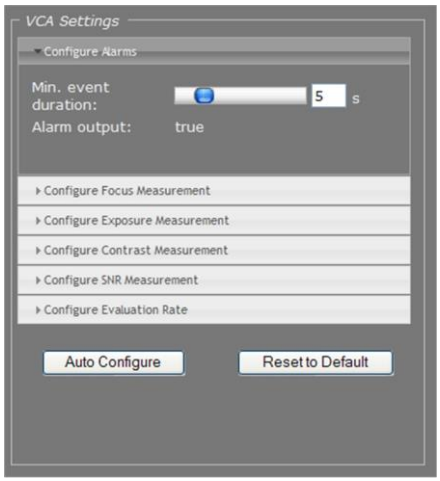


Image Quality not OK: Alarm output = true

The red circle around the Focus dial in the figure above indicates that the alarm is raised by the Focus measurement. The Exposure dial has no red circle, although the pointer is in the Hysteresis area. This shows that Exposure was correct before and that this measurement in itself is not the cause of the alarm.

Note: In addition to the visual indications on the web pages, alarms can also be read from the HSD62x 's internal Management Information Base (MIB) using appropriate software, or through Siqura's Open Streaming Architecture (OSA) - that is, the "Siqura Programming Interface" (API). The HSD62x includes SNMP support for its image monitor and tampering detection. A trap is sent when bad image quality or camera tampering has been detected and another one when the situation returns to normal. This support requires a new SNMP MIB, the OPTC-VCA-MIB, which can be downloaded at www.siqura.com.

11.10.4 Measurements configuration



Video > Image Monitor > VCA Settings

The default Measurements values will mostly work well for you. If you do need to modify them you can do so in the VCA Settings section.

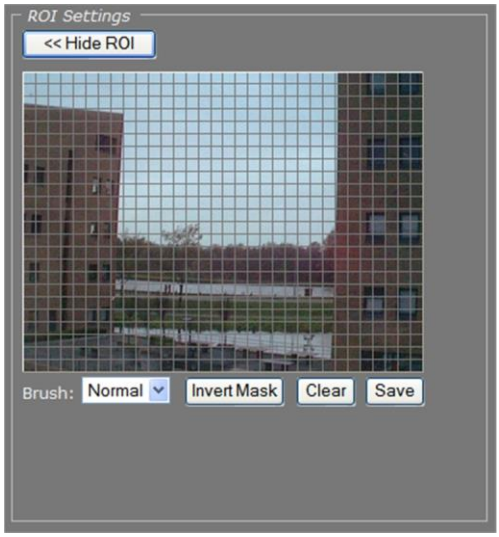
Item	Description	
Configure Alarms	*Min. event duration*	Alarm output delay time: the time span that is to elapse before a continued change in conditions actually activates/deactivates the alarm output.
	Alarm output	*True* or *False*. Indication of current status.
Configure Focus Measurement	Allow you to enable/disable each measurement separately and customise its alarm threshold and hysteresis to your requirements.	
Configure Exposure Measurement		
Configure Contrast Measurement		
Configure SNR Measurement		
Configure Evaluation Rate	The value entered here determines the speed at which the host machine processes the algorithms underlying the measurements. Higher values take up more CPU power.	
Auto Configure	Adjusts the alarm thresholds, based upon the current measurements. The green area is centred around the current pointer position.	
Reset to Default	Restores the original thresholds. Does not affect the current activity status of the measurements (i.e. being Enabled or Disabled).	

Tip: A PTZ camera moving from one preset to the next may trigger an alarm if the scene change takes too long. Setting an appropriate time for the Min. event duration parameter can delay the alarm output until the camera has adopted the new position and the alarm condition has ceased.

To configure a measurement

1. In the *VCA Settings* section, click the button for the measurement you wish to configure.
   The measurement's settings display.
2. Select the **Enable** box, if necessary.
3. Set the alarm threshold to your requirements.
   Note that you can set two thresholds for *Exposure* (under- and overexposure) and *Contrast* (low and high contrast).
4. Set the Hysteresis.
5. Click the **Configure Alarms** button and set the *Min. event duration*, if desired.
6. Click the **Configure Evaluation Rate** button and modify this setting, if desired.

11.10.5 Region of Interest (ROI)



Video > Image Monitor > ROI Settings

ROI preview

Pressing Show ROI>> in the ROI Settings section opens a preview with a grid overlay. You can use it to mask portions of the image you wish to exclude from monitoring. Certain regions can disrupt the measurements or be of no importance. You may want to filter out a bright source of light, a region with low contrast, or differences in focus, for example. The part of the image that you have *not* selected on creating the mask is called the Region of Interest (ROI).

To set a mask

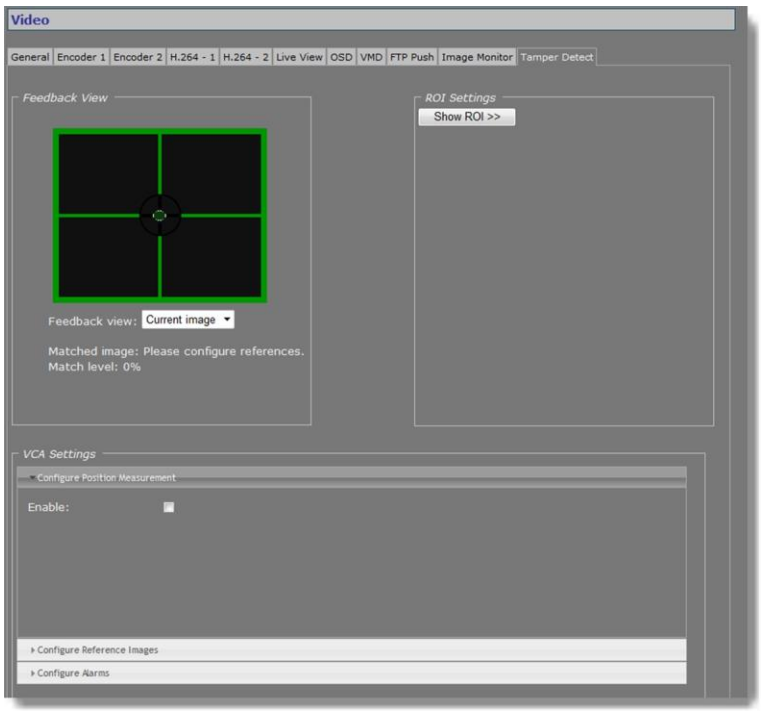
- To edit the mask, click on the grid that is put over the image.
  One or more mask elements at, and possibly around, that position, are produced.
- Hold the standard mouse button and drag, to 'brush' (i.e. mask) larger areas, with a 'Normal', 'Small', or 'Large' brush.
- Use the 'Invert Mask' button to reverse a selection.
- Hold the right mouse button and drag, to erase mask areas.
- Use the 'Save' button to store the mask in the unit.

To delete a mask

- Press the **Clear** button.

Item	Description	
Brush	*Normal*	Allows grid elements to be accessed in 4-element groups.
	Large	Allows grid elements to be accessed in 16-element groups.
	Small	Allows grid elements to be accessed one at a time.
Invert Mask	Enables you, for example, to start creating a mask by marking the (smaller) area(s) you *do* wish to monitor and then use this button to reverse the selection.	
Clear	Clears the mask.	
Save	Makes the current mask effective and stores it for later use.	

11.11 Tamper Detect



Video > Tamper Detect (disabled)

11.11.1 Camera movement and scene changes

As a result of tampering, or more accidentally, after cleaning, a camera may no longer cover the area designated for monitoring. The Tamper Detect function can detect camera position changes and scene changes such as a blocked camera view, for example. It does so by comparing the current image to one or more reference images that were captured and stored earlier.

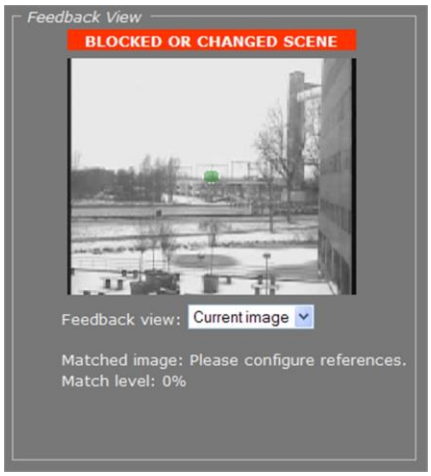
11.11.2 Enable Tamper Detect

Tamper Detect is disabled by default.

To enable Tamper Detect

- In the *VCA Settings* section, select **Enable**.
  The Position Measurement settings are opened.

Important: If no reference images have been stored yet, a BLOCKED OR CHANGED SCENE alarm displays in the Feedback View. Tamper Detect cannot find a match with the current image. You will need to create one or more reference images first.



Tamper Detect enabled: No reference images found

11.11.3 Reference images

You can create up to 16 reference images. This enables you to store images captured in different day/night situations and/or from multiple PTZ preset positions. When the camera moves to a different preset Tamper Detect tries to match the new scene to the available reference images.

11.11.3.1 Create a reference image

To create a reference image

1. In the *VCA Settings* section, click **Configure Reference Images**.
2. Open the **Reference image** list, and then select the image you want to create.
3. Enter a descriptive name in the *Label* box.
4. Enter a value (in seconds) for the *Sampling duratio*n.
   This parameter enables you to capture the background of a scene only and have specific elements such as moving objects filtered out of the image. With a longer time span for the sampling duration, persons passing in front of the camera, for example, or cars driving on a highway can be smoothed out to prevent them from triggering a changed scene alarm.
5. Click the **Sample reference** button.
   The current image is sampled.

Reference image 1 created

11.11.3.2 Mask the ROI

You can use the ROI settings section to exclude portions of the image from monitoring, as explained earlier in the Region of Interest section.

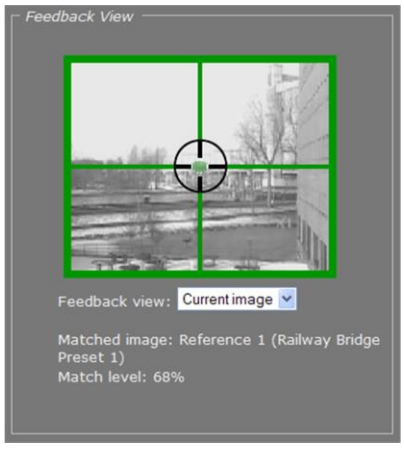
Region of less interest masked

11.11.3.3 Compare images

Tamper Detect compares the current scene with all available reference images. If a match is found a green crosshair is superimposed on the image in the Feedback view. Information about the matched image and the match level is displayed under the Feedback view.

The small green circle in the middle of the image indicates the amount of camera movement that is allowed. A position alarm is raised when the green circle is outside the crosshair centre. For information about adjusting the amount of allowed camera movement, see Position Measurement.

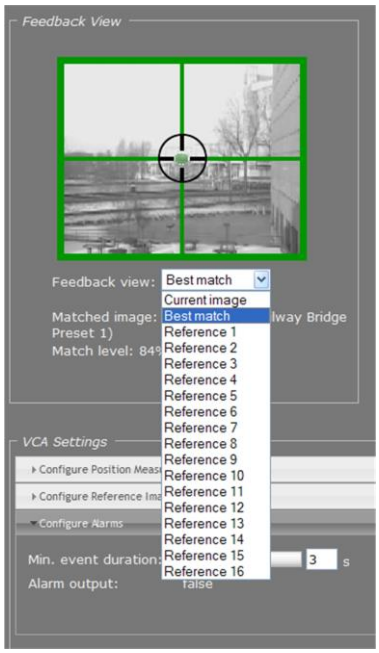
If no match is found a BLOCKED OR CHANGED SCENE alarm is raised.



Current image matches Reference 1

Reference image(s) available. No match found with current image, though.

The drop-down list in the Feedback View section can be used to display the current image, the best matching reference image, or a specific reference image.



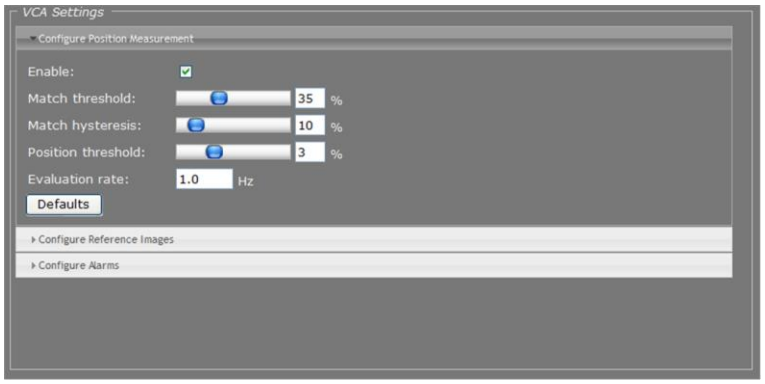
Feedback view list

11.11.3.4 Delete a reference image

To delete a reference image

1. In the *VCA Settings* section, open the **Reference image** list.
2. Select the image you wish to delete.
3. Press **Clear reference**.
   Note that the *Clear all* button deletes *all* available references.

11.11.4 Position measurement



Video > Tamper Detect > Position Measurement

After creating one or more reference images you can configure the Position Measurement settings to define thresholds for allowed camera movement and image matching.

Item	Description
Enable	Enables Tamper Detect functionality.
Match threshold	The current image and the reference image it is compared with are considered a match upon reaching the degree of similarity specified here. The lower the percentage entered for this parameter, the fuzzier the match.
Match hysteresis	This is the margin area where there is either a match or no match, depending on the preceding match level. If your alarm output frequently alternates between "true" and "false" you can use this parameter to fine-tune your settings.
Position threshold	Determines the amount of camera movement that is allowed before a position alarm is raised. Raising this value allows more camera movement. This is indicated by the increased size of the green circle in the center of the image.
Evaluation rate	The value entered here determines the speed at which the host machine processes the algorithms underlying the measurements. Higher values take up more CPU power.
Defaults	Restores the original settings. Does not affect the current activity status of Tamper Detect - that is, being Enabled or Disabled.

11.11.5 Alarms

Video > Tamper Detect > Configure Alarms

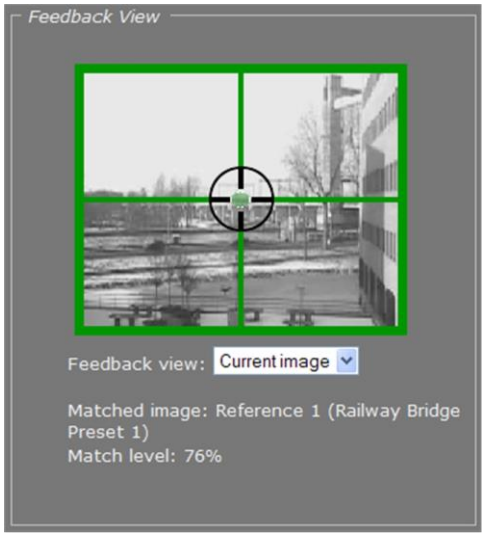
The Configure Alarms section enables you to view the current status of the alarm output and to set a delay for the activation/deactivation of alarm outputs.

Note: In addition to the status indication in this section, alarms can also be read from the HSD62x 's internal Management Information Base (MIB) using appropriate software, or through Siqura's Open Streaming Architecture (OSA) - that is, the "Siqura Programming Interface" (API). The HSD62x includes SNMP support for its image monitor and tamper detect functions. A trap is sent when bad image quality or camera tampering has been detected and another one when the situation returns to normal. This support requires a new SNMP MIB, the OPTC-VCA-MIB, which can be downloaded at www.siqura.com.

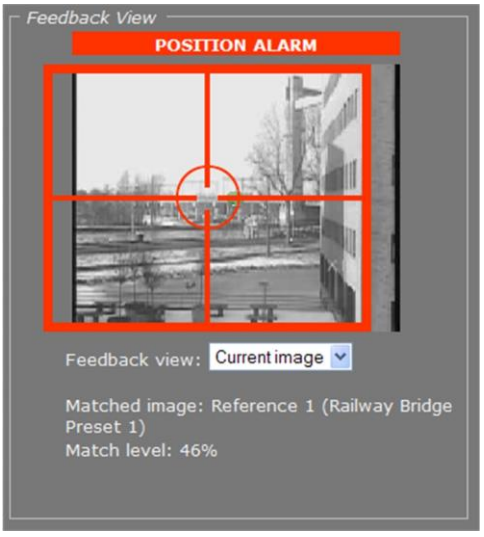
Item	Description
Min. event duration	Alarm output delay time: the time span that is to elapse before a continued change in conditions actually activates/deactivates the alarm output.
Alarm output	*True* or *False*. Indication of current status.

Tip: A PTZ camera moving from one preset to the next may trigger an alarm if the scene change takes too long. Setting an appropriate time for the Min. event duration parameter can delay the alarm output until the camera has adopted the new position and the alarm condition has ceased.

11.11.5.1 Alarm examples

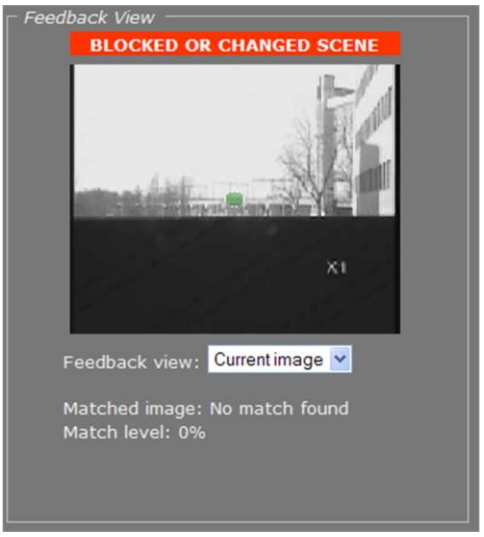


Original camera position



Camera has moved to the right. Although the current image still matches Reference 1, the changed camera position results in a position alarm.

Camera has moved further to the right.
Current image no longer matches any reference image, resulting in a changed scene alarm.



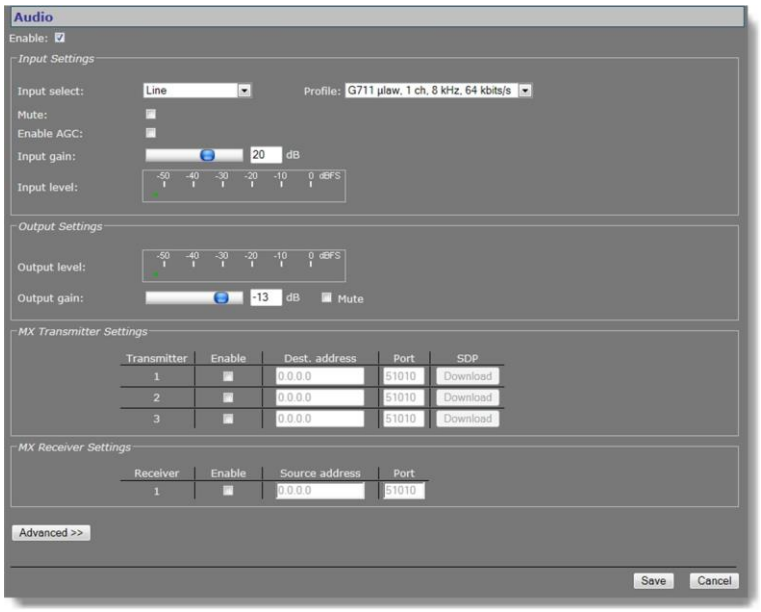
Blocked scene alarm

12 Audio

This chapter describes the functionality and settings found on the Audio page of the HSD62x.

In This Chapter

12.1 Enable audio



Audio page

Using the *Enable* check box at the top of the Audio page, you can enable/disable the entire audio functionality (the latter, for example, to prevent unwanted eavesdropping). Remember to *Save* the configuration to make it effective.

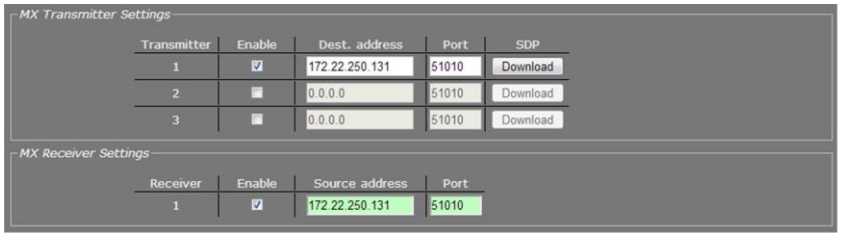
12.1.1 Input Settings

Item	Description	
Input select	*Line*, *Microphone*, or *Microphone + bias*.	
Mute	Audio on/off.	
Enable AGC	To adjust the gain to an appropriate level, Automatic Gain Control reduces the volume if the signal is strong and raises it when it is weaker.	
Input gain	Range: [0…30] dB. Is disabled when AGC is enabled. Drag the sliding button or type a value. Gain control reacts directly, with the need to press *Save*.	
Input level	VU meter to display audio input level.	
Profile	Preset combinations of settings. A non-standard setting configured through the Advanced Settings gives '--' in the Profile selector.	
	G711 A-law. 1 ch. 8 kHz 64 kbit/s	▸ default setting ▸ mainly used in Europe ▸ mono, low quality ▸ used for QuickTime
	G711 µ-law. 1 ch. 8kHz. 64 kbit/s	▸ mainly used in USA ▸ mono, low quality ▸ used for Genetec's Omnicast
	Legacy PCM	▸ 2 channels (stereo) ▸ high quality, 15.7 kHz ▸ compatible with all Siqura products (including C-20, C-40, S-40)

12.1.2 Output Settings

Item	Description
Output level	VU meter to display audio output level.
Output gain	Range: [-80…0] dB.
Mute	Select/clear this box to mute/unmute audio.

12.2 Make audio connections



Audio > MX Transmitter and MX Receiver Settings, two-way audio

Audio streams

The HSD62x provides bidirectional audio. The HSD62x can send three audio streams to different destinations, multicast or unicast, to an A-80, or any C-/S-series codec with an audio interface. It can also receive one audio stream from an A-80 or any C-/S-series codec that features audio.

Highlighted fields

The source address and port number fields are highlighted in green when the enabled receiver receives a stream from the specified source. The two fields are marked in red when no stream is received with the receiver enabled and correctly configured.

Two-way audio

The figure above shows the setup for two-way audio on the side of the HSD62x. The device on the other side of the connection (with the IP address 172.22.250.131) would need similar settings, that is - it must hold the IP address of the HSD62x as the destination and source. Transmitters and receivers must be enabled in order for streaming to start. Remember to *Save* a configuration to make it effective.

SDP download

Use the SDP Download button to download a Session Description Protocol (SDP) file from the encoder. SDP files contain streaming media initialisation parameters and properties. An SDP file does not deliver media itself but through file association the media stream can be opened in media players such as QuickTime and VLC. You can also use the SDP file to specify the URI in your web browser.

12.2.1 MX Transmitter Settings

Item	Description
Enable	Select/Clear to enable/disable the stream transmission, respectively.
Dest. address	IP address of the codec that will receive the stream.
Port	The local port number of the codec that will receive the stream.
SDP	To download a Session Description Protocol (SDP) file from the encoder, click the Download button.

12.2.2 MX Receiver Settings

Item	Description
Enable	Select/Clear to enable/disable the stream reception, respectively.
Source address	IP address of the codec that will transmit the stream.
Port	The local port number of the HSD62x.

12.3 Advanced

Important: If in doubt about these settings, do *not* change the default values.

12.3.1 Audio Input

Audio > Advanced > Audio Input

Item	Description
Sample rate	Range: [7500…48000]. Allows you to enter custom settings (other than those included in the Profile list in the Input Settings section), e.g., for communication with a C-20 codec. Examples: ▸ 7845 Hz A-law ▸ 15710 Hz A-law ▸ 15710 Hz PCM ▸ 43200 Hz PCM
Auto detect threshold channel 1	Range: [-60…0] dB. The audio level is measured. When the audio level reaches the threshold set here, the audio detect flag is set. This flag can be used to generate a 'silence' alarm or a 'too much noise' alarm.

12.3.2 Audio Output

Audio > Advanced > Audio Output

Item	Description
Bass	Range: [0…18] dB.
Treble	Range: [0…6] dB.

12.3.3 Audio Encoder

Audio > Advanced > Audio Encoder

Item	Description
Audio format	*PCM 16bit*, *A-law 8bit*, *µ-law 8bit*.

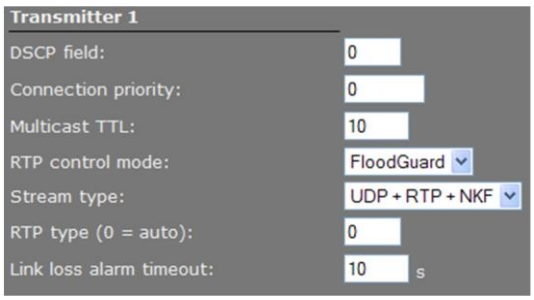
12.3.4 Audio Decoder

Audio - Advanced - Audio Decoder

Generally speaking, Audio Decoder settings follow the settings of the source - that is, the encoder on the other side of the connection. The settings shown in the figure above are defaults, used when receiving a stream of which the format cannot be determined, for example.

Item	Description
Sample rate	Range: [7500…48000]. Examples (for 1 and 2 channels): ▸ *7845 Hz* A-law ▸ *15710 Hz* A-law ▸ *15710 Hz* PCM ▸ *43200 Hz* PCM
Audio format	*PCM 16bit*, *A-law 8bit*, *µ-law 8bit*.

12.3.5 Transmitter



Audio > Advanced > Transmitter #

Item	Description	
DSCP field	Range: [0...63]. DSCP (Differentiated Services Code Point) uses the first 6 bits of the ToS (Type of Service) field in the header of IP packets for packet classification purposes. The bit pattern in the field indicates the type of service and forwarding behavior at the next node. With 26 bits, up to 64 network service types can be defined. *RFC 2724* (*http://www.ietf.org/rfc/rfc2474.txt*) describes the Differentiated Services (DS) field and the DiffServ Code Point. See also the note on Differentiated Services later in this chapter.	
Connection priority	Parameter intended for use with MX Software Development Kit (MX SDK).	
Multicast TTL	Range: [0...127]. Specify the number of routers (hops) that multicast traffic is permitted to pass through before expiring on the network.	
RTP control mode	Select the transport protocol to control the stream.	
	None	No transport protocol selected.
	FloodGuard	Flooding prevention mechanism. For more information, see the note on FloodGuard later in this chapter.
	RTCP	Real-Time Control Protocol, a network control protocol for use in communications systems to control streaming media servers.
Stream type	*UDP + RTP*	Default setting. Plain RTP stream over UDP.
	UDP + RTP + NKF	Adds an extended RTP header for Siqura applications requiring extra information.
RTP type (0 = auto)	Default value: [0]. This parameter determines the RTP payload format (e.g. H.264, MPEG-2/4, or audio). To avoid an RTP type conflict, the values specified on both sides of the connection must be the same. The default value of "0" automatically sets the appropriate media type. You are advised not to change this setting.	
Link loss alarm timeout	Range: [1...1000] s. Default: 10 s. Time in seconds before alarm sent.	

12.3.6 Receiver 1

Audio > Advanced > Receiver 1

Item	Description	
Filter on source port	Can be used to filter incoming signals. With multiple signals sent to the same IP address and destination port number, *Filter on source port* can be used to filter the input, i.e. to accept only signals from the transmitting port specified here. The filter will not be active if set to 0 (the default and recommended setting).	
Connection priority	Parameter intended for use with MX Software Development Kit (MX SDK).	
Reorder buffer size	Used to reorder incoming packets.	
Stream fail delay	Range: [0...10000] ms. Default: 300 ms. Timeout in ms before going to NoStream state.	
RTP control mode	Select the transport protocol to control the stream.	
	None	No transport protocol selected.
	FloodGuard	Flooding prevention mechanism. For more information, see the note on FloodGuard later in this chapter.
	RTCP	Real-Time Control Protocol, a network control protocol for use in communications systems to control streaming media servers.
RTP type (0 = auto)	Default value: [0]. This parameter determines the RTP payload format (e.g. H.264, MPEG-2/4, or audio). To avoid an RTP type conflict, the values specified on both sides of the connection must be the same. The default value of "0" automatically sets the appropriate media type. You are advised not to change this setting.	
Link loss alarm timeout	Range: [1...1000] s. Default: 10 s. Time in seconds before alarm sent.	

12.3.7 RTSP Transmitter

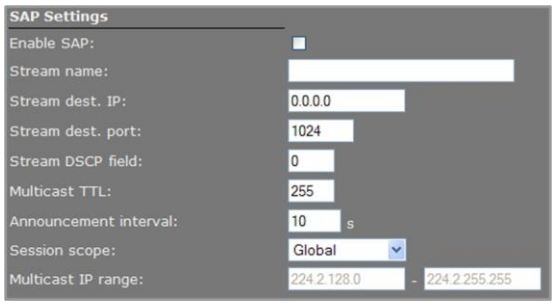
Audio > Advanced > RTSP Transmitter

Item	Description
DSCP field	Range: [0...63]. DSCP (Differentiated Services Code Point) uses the first 6 bits of the ToS (Type of Service) field in the header of IP packets for packet classification purposes. The bit pattern in the field indicates the type of service and forwarding behavior at the next node. With 26 bits, up to 64 network service types can be defined. *RFC 2724* (*http://www.ietf.org/rfc/rfc2474.txt*) describes the Differentiated Services (DS) field and the DiffServ Code Point. See also the note on Differentiated Services later in this chapter.
Default multicast IP address	Destination IP address for multicast sessions.
Default multicast IP port	Port number for multicast sessions.

Note on Differentiated Services: Differentiated Services (DiffServ, or DS) is a method for adding QoS (Quality of Service) to IP networks. In routed networks, critical network traffic such as video and audio streams, which require a relatively uninterrupted flow of data, can get blocked due to other traffic. DiffServ can be used to classify network traffic and give precedence - i.e. low-latency, guaranteed service - to high-priority traffic, while offering best-effort service to non-critical traffic such as file transfers or web traffic.
Each stream has a DSCP (Differentiated Services Code Point) field in the IP header. Routers will identify the network service type in the DSCP field and provide the appropriate level of service. Low-latency service can be realized, for example, through priority queuing, bandwidth allocation, or by assigning dedicated routes.

Note on RTP and RTCP: The Real-time Transport Protocol (RTP) is designed for end-to-end real-time, audio or video data flow transport. It is regarded as the primary standard for video/audio transport over multicast or unicast network services. RTP does not provide guaranteed delivery, but sequencing of the data makes it possible to detect missing packets. It allows the recipient to compensate for breaks in sequence that may occur during the transfer on an IP network. Error concealment can make the loss of packets unnoticeable.
RTP is usually used in conjunction with the Real-time Transport Control Protocol (RTCP). RTP carries the media streams. RTCP provides reception quality feedback, participant identification and synchronization between media streams.

12.3.8 SAP Settings



Audio > Advanced > SAP Settings

The HSD62x includes a SAP announcer. The Session Announcement Protocol is used to advertise that a media stream generated by the HSD62x is available at a specific multicast address and port. For more information about SAP, see the note below.

Item	Description
Enable SAP	When selected, session announcements are sent at the frequency determined by the Announcement interval parameter and the media stream is transmitted to the multicast IP address specified in the Stream dest. IP address box.
Stream name	Enter a descriptive name to identify the media stream.
Stream dest. IP	Enter the multicast IP address the media stream is to be sent to. The address must be within the range defined by the Multicast IP range parameter.
Stream dest. port	The destination port number. Default: 1024.
Stream DSCP field	Range: [0…63]. See the note on DSCP.
Multicast TTL	Range: [0...127]. Specify the number of routers (hops) that multicast traffic is permitted to pass through before expiring on the network.
Announcement interval	Determines the frequency of announcements.
Session scope	*Global*, the default session scope, sets the *Multicast IP range* parameter to 224.2.128.0 - 224.2.255.255 (IPv4 global scope sessions). A SAP listening application will recognize the global scope and automatically listen for SAP announcements at the 224.2.127.254 multicast IP address. The *Administrative* session scope allows you to enter a custom IP range within the 239.0.0.0 - 239.255.255.255 (IPv4 administrative scope sessions) range. For an Administrative session scope, the multicast address for SAP announcements will be set to the highest address in the relevant administrative scope. For example, for a scope range of 239.16.32.0 - 239.16.33.255, the IP address 239.16.33.255 is used for SAP announcements.
Multicast IP range	See Session scope.

Note on the Session Announcement Protocol (SAP): SAP, defined in *RFC 2974* (see RFC 2974 - *http://www.ietf.org/rfc/rfc2974.txt*), is a protocol for advertising multicast session information. A SAP announcer periodically broadcasts announcement packets which include the session description information of multicast sessions presented by the announcer. SAP uses the Session Description Protocol (SDP) as the format of the session descriptions. The announcement is multicast with the same scope as the session it is announcing, ensuring that the recipients of the announcement are within the scope of the session the announcement describes. SAP listening applications can listen to the announcements and use the information to construct a guide of all advertised sessions. This guide can be used to select and start a particular session. The SAP announcer is not aware of the presence or absence of SAP listeners.

13 CC Streams

This chapter provides information about the HSD62x's contact closure (CC) channels, CC status, and alarms.

In This Chapter

13.1 CC channels, CC status, and alarms

CC Streams page

CC channels

The HSD62x's two contact closure channels, each capable of transmitting three copies per signal, are independent and their transmitters can be used separately.

CC status

The receiver relays are normally open (fail-safe). Each CC input is sampled 100 times per second. Changes are transmitted directly, so overall latency of the contact closure signals is <20 ms. To confirm, the actual contact closure status is transmitted every 100 ms; there is no further forward error correction on these signals.

Alarms

If a contact closure signal is to be transmitted to a PC, the software requesting it can open a contact closure stream from the HSD62x, which will carry the CC information. At the opposite end of the link (a PC running the software), the contact closures may be regarded as, and even named alarms, but those 'alarms' are not necessarily related to module alarms.

In the module, closing a physical CC input will change the payload of the existing stream, as described above, and additionally cause a module alarm saying the input status is 'closed'. A notification about the latter module alarm is also sent out over the network and can be caught separately by application software. Alternatively, application software can poll the HSD62x and check for the module alarm. Stream alarms (link alarms in the modules, at both link ends) become active if the link fails.

13.2 Input # Settings

CC Streams > Input 1 Settings

Item	Description	
Operational mode	*Normal*	Direction.
	Invert	
	Force active	Always on (e.g. for testing purposes).
	Force inactive	Always off.

13.3 Make contact closure connections

Making CC links is similar to making video/data/audio links, but without additional interface configuration.

To make a contact closure connection

- On the Transmitter side, fill in a destination IP address and port number for each codec you want a CC stream to go to, and then enable the stream.
- On the other side of the link (i.e. the codec you want to receive the CC stream), fill in the source IP address, the local port number (the same as specified for the transmitter), and then enable the receiver.

Note: Clearing an Enable check box disables the transmission or reception of the stream, not the contact input or output itself. If the stream is disabled, the contact can still be controlled and read using MX software or the HTTP API.

13.4 Advanced

Important: If in doubt about these settings, do *not* change the default values.

13.4.1 Transmitter

CC Streams > Advanced > Transmitter 1

Item	Description
Connection priority	Parameter intended for use with MX Software Development Kit (MX SDK).
Multicast TTL	Range: [0...127]. Specify the number of routers (hops) that multicast traffic is permitted to pass through before expiring on the network.
Link loss alarm timeout	Range: [1...1000] s. Default: 10 s. Time in seconds before alarm sent.

13.5 CC Output

The HSD62x has a single contact closure output which can be controlled with the following Pelco-D commands:

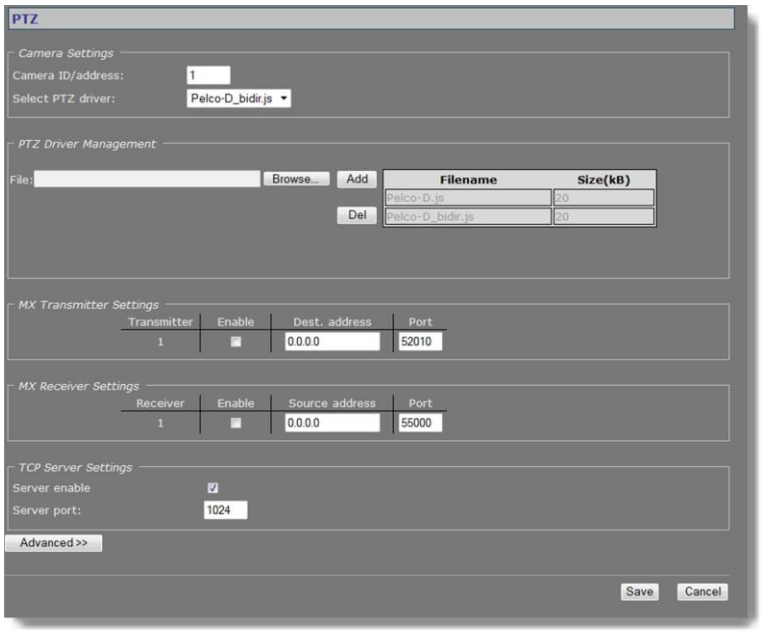
- Alarm Output On - **Set** Preset 9 6
- Alarm Output Off - **Go** Preset 9 6

14 PTZ

The HSD62x can be controlled with the PTZ Control panel on the Live Video page. This chapter describes how to enable PTZ camera control. You will also see how you can upload PTZ drivers to the HSD62x and how you can remove drivers.

In This Chapter

14.1 Enable PTZ control



PTZ page

PTZ camera control is enabled by selecting a driver that is supported by the camera. If the required driver is not included in the PTZ driver list, you can upload it to the HSD62x (see below).

To enable PTZ control

1. In the *Camera Settings* section, specify the Camera ID/address.
2. From the *PTZ driver* list, select the protocol supported by the PTZ device you wish to control.
3. Click **Save**.

   You can now control the camera with the control panel on the Live Video page.

14.2 Upload/Remove PTZ drivers

To upload a PTZ driver

1. In the *PTZ Driver Management* section, click **Browse**.
2. In the *File to Upload* dialog box, browse to the folder containing the driver.
3. Select the appropriate file (`.txt` or `.js` extension), and then click **Open**.
   The driver displays in the *File* text box.
4. Click the **Add** button.
   The driver is added to the list of available drivers in the *PTZ Driver Management* and *Camera Settings* sections.

To remove a PTZ driver

1. In the *PTZ Driver Management* section, select the driver you wish to remove.
2. Click the **Del** button.

14.3 MX Transmitter/MX Receiver Settings

PTZ data link configuration is done in the same fashion as described for video and audio links.

14.4 TCP Server Settings

TCP Server Settings

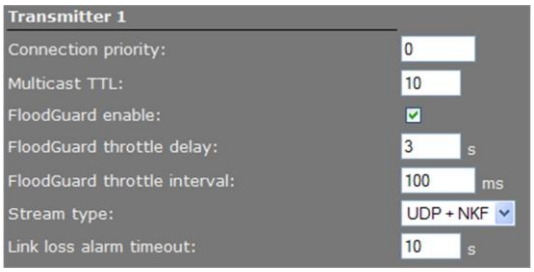
TCP connections are always bidirectional, so no separate transmitter and receiver settings are needed.

Item	Description
Server enable	Selecting this box enables the streaming of PTZ data over TCP using a client/server connection. The server accepts requests from a specific client, or any host if not specified.
Server port	Range: [0...65535].

14.5 Advanced

Important: If in doubt about these settings, do *not* change the default values.

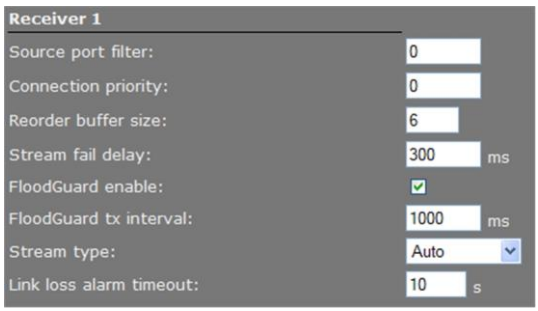
14.5.1 Transmitter 1



PTZ > Advanced > Transmitter 1

Item	Description
Connection priority	Parameter intended for use with MX Software Development Kit (MX SDK).
Multicast TTL	Range: [0...127]. Specify the number of routers (hops) that multicast traffic is permitted to pass through before expiring on the network.
FloodGuard enable	Should be on when sending to a unicast IP address, so that an alarm can be generated if no control messages from the receiver have come in for the time set by the FloodGuard throttle delay variable.
FloodGuard throttle delay	Amount of time after which the transmitter will enter throttled mode.
FloodGuard throttle interval	Sets the frequency of empty packets being sent into the network while the transmitter is in throttled mode.
Stream type	The UDP + NKF option will add an extended RTP header for Siqura applications requiring extra information.
Link loss alarm timeout	Range: [1...1000] s. Default: 10 s. Time in seconds before alarm sent.

14.5.2 Receiver 1



PTZ > Advanced > Receiver 1

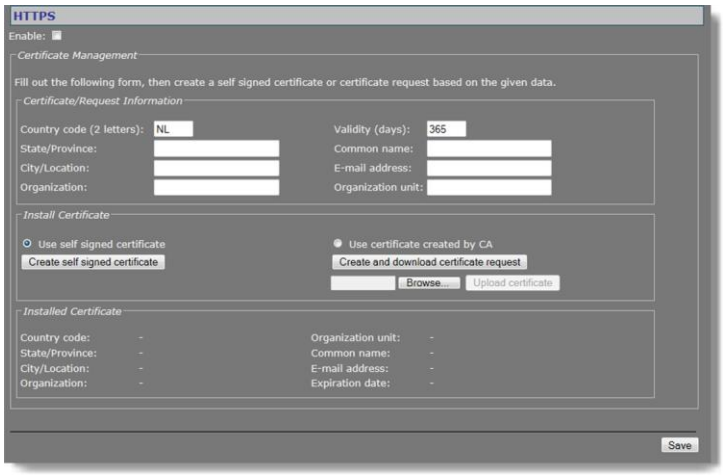
Item	Description
Source port filter	Can be used to filter incoming data traffic. With multiple signals sent to the same IP address and destination port number, Source port filter can be used to filter the input, that is - to accept only data from the transmitting port specified here. The filter will not be active if set to 0 (the default and recommended setting).
Connection priority	Parameter intended for use with MX Software Development Kit (MX SDK).
Reorder buffer size	Used to reorder incoming packets.
Stream fail delay	Range: [0...10000] ms. Default: 300 ms. Timeout in ms before going to NoStream state.
FloodGuard enable	Should be on, to enable the sending of control messages.
FloodGuard tx interval	Interval at which the receiver sends control messages to the transmitter (see the section on FloodGuard).
Stream type	The UDP + NKF option will add an extended RTP header for Siqura applications requiring extra information.
Link loss alarm timeout	Range: [1...1000] s. Default: 10 s. Time in seconds before alarm sent.

15 Security

From the Security page, Administrators can install security certificates to enable secure connections between the HSD62x and web browsers. Certificates can be self-signed or obtained from a Certificate Authority.

In This Chapter

15.1 HTTPS



Security page

Secure connections

An HTTPS connection is a standard HTTP connection on top of an SSL/TLS connection, adding the security capabilities of SSL/TLS to standard HTTP communication. With HTTPS implemented and used on the HSD62x, a safe exchange of data between the unit and a web browser is ensured. Information transported over the network, such as device settings and credentials, is encrypted to protect it against eavesdropping.

Certificates

To implement HTTPS on the HSD62x, you need to install an HTTPS certificate. You can use a self-signed certificate or one created by a Certificate Authority (CA). CA-issued certificates provide a higher level of security and inspire more trust than self-signed certificates. Self-signed certificates are often installed for test purposes or as a temporary solution until a CA-issued certificate has been obtained.

15.2 Certificate/Request information

In the Certificate/Request Information section, you can provide the information required for a self-signed certificate or a CA-issued certificate.

Item	Description
Country code (2 letters)	The country where the certificate is to be used. Default: "NL".
State/Province	The administrative region in which the organisation is located.
City/Location	City/Location where the organisation is based.
Organisation	The name of the organisation which owns the entity specified in the "Common name" text box.
Validity (days)	The valid period (in days) of the certificate. Default: 365.
Common name	The name of the entity to be certified by the certificate.
E-mail address	The contact e-mail address
Organisation unit	The name of the organisational unit which owns the entity specified in the "Common name" text box.

Important: Make sure that the *Common name* you specify when you generate a security certificate matches the URL that is used to access the webpages of the HSD62x. Generally, this is the IP address of the unit, followed by "/frame.html". For example: 10.50.3.72/frame.html

15.3 CA-Issued certificate

Steps towards implementing a certificate created by a CA

- Create the certificate request
- Send the request to a CA
- Upload the CA-signed certificate to the unit

Note: When you implement a certificate you may need to modify your browser settings to allow pop-ups.

To generate a certificate request

1. In the *Certificate/Request Information* section, enter the required information as described above.
2. Click **Create and download certificate request**.
   A pop-up displays.
3. In the pop-up, click **Save**.
   You can copy the request from your download folder now and then send it to a CA.

To install a signed certificate from a CA

1. Click **Browse**.
2. Browse and select the certificate file.
3. Click **Upload Certificate**.
   A warning displays.
4. Click **Yes** to continue.

15.4 Self-signed certificate

To create a self-signed certificate

1. In the *Certificate/Request Information* section, enter the required information as described above.
2. Click **Create self-signed certificate**.

15.5 Open a secure connection

With a security certificate installed, you can establish a secure connection.

To enable HTTPS and open a secure connection

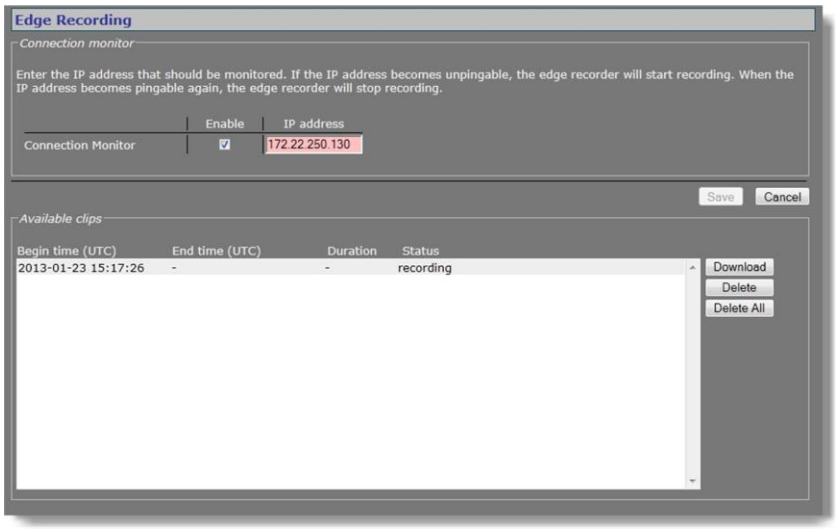
1. On the *Security* page, select **Use self-signed certificate** or **Use certificate created by CA** (depending on the type of certificate you want to use).
2. At the top of the page, select **Enable**.
3. Click **Save**.
4. Refresh the page.
5. Log on to the HSD62x again.
   Your browser is now using a secure connection to communicate with the unit.

16 Edge recording

This chapter describes how you can use edge recording to record video from the HSD62x to the embedded SD card.

In This Chapter

16.1 Edge recording basics



Connection monitor enabled. Edge recorder is recording video (the specified IP address is unpingable).

Edge recording makes it possible to record and store video locally - that is, at the HSD62x. To prevent loss of video when the connection to a central network video recorder or VMS sytem is lost, recorded video clips can be stored on the SD card inside the HSD62x. From the Edge recording page, the clips can then be downloaded for further processing.

16.2 Monitoring

Unlike 24-hour recording by an NVR, edge recordings are typically short recordings. Start and stop times for the recordings are triggered by external events, such as a lost or restored connection to an NVR or VMS, for example. To detect these events, the HSD62x monitors the network connection to the device specified by its IP address. This is done by pinging it at regular intervals to test its reachability over the network.

To monitor a connection

1. In the *Connector monitor* section, specify the IP address to be monitored.
2. Select **Enable**.
3. Click **Save**.
   The device is now pinged every 15 seconds.
   If the device is reachable, IP address highlighting goes from pink to green.

16.3 Recording

Detecting a loss of connection to the device at the monitored IP address triggers the following:

- Edge recording starts.
- The IP address of the device is highlighted in pink to indicate the connection loss.
- The video clip appears in the *Available clips* section with clip status shown as 'recording'.
  A recording status reported as 'pending' is an indication that the encoder used for edge recording is either not enabled or not correctly configured for edge recording.
- Edge recording continues until the device becomes responsive to ping messages again.

Important: Recording does not start if the device at the specified IP address has not been detected previously. In other words, recording is only possible if the device has acknowledged its presence on the network at least once by responding to ping messages. This is to prevent unintended recording to the SD card.

16.4 Clips

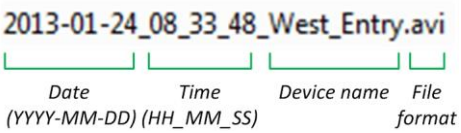
Details about clips can be found in the *Available clips* section.

- Clips with recording status 'recording' or 'ready' are available for download in .avi format.
- Clips include 30 seconds of prerecorded video and five seconds of postrecorded video. The prerecording mechanism is active at all times.
- Clip file size will not exceed 500 MB. If a recording requires more storage capacity, multiple clips are created.
- Clips can be deleted one at a time (select the clip, and then click *Delete*), or all in one go (click *Delete all*).

To download a clip

1. In the *Available clips* section, select the clip.
2. Click **Download**.
3. Specify if you want to open, save, or cancel the download.

Clip file names are created automatically using UTC date/time information and the device name.



16.5 SD card

You can check the SD card storage capacity through the Status page (see the Measurements tab).

Important: Note that the storage capacity available for edge recording is limited to 75% of the actual SD card size - that is, for example, 24 GB of a 32 GB SD card. This limit is to prevent slow read/write speeds.>

When the SD card is full, recording stops and a message is sent to the syslog (for a description of the syslog function, see *Device Management*).

Warning: Powering down or rebooting the HSD62x, or insertion into an operational unit erases all content on the SD card! Clips will be irretrievably lost.

17 Event management

This chapter describes the Event Management page.

In This Chapter

17.1 Associate events with output facilities

Event Management page

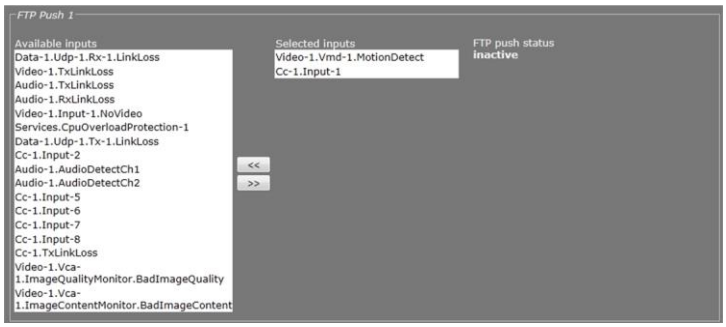
You can use the Event Management page to configure how the HSD62x is to handle incoming events/alarms. The event sources listed under Available inputs can be routed to a CC stream and FTP push.

17.1.1 CC Stream

Item	Description
Available inputs	List of sources that can be selected as inputs for each of the two contact closure streams.
Selected inputs	Selected inputs are connected with a logical OR so that any one will cause a remote contact to close when the corresponding transmitter is set up correctly from the CC Streams page.
Stream status	*Inactive (open)* or *active (closed).* Active: one or more of the selected inputs is true. Inactive: none of the selected inputs is true.

17.1.2 FTP Push

If FTP push is configured to be event-triggered (see the FTP Push tab of the Video page), you need to select one or more sources from the Available inputs list that will activate an image upload to the FTP server(s).



Event Management > FTP Push 1. Two inputs associated with FTP push.

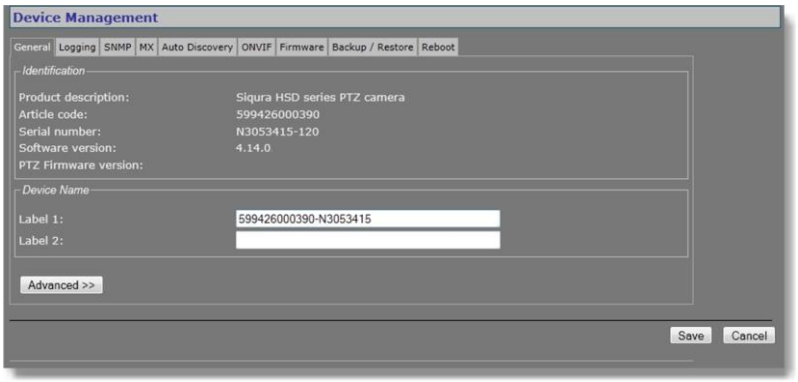
Item	Description
Available inputs	List of sources that can be selected as triggers for an FTP push.
Selected inputs	On selection of multiple inputs, the inputs are connected with a logical OR. Any one will cause an image upload to the FTP server.
FTP push status	*Inactive (open)* or *active (closed).* Active: one or more of the selected inputs is true. Inactive: none of the selected inputs is true.

18 Device management

You can use the Device Management page to configure management settings for the HSD62x, upgrade or downgrade the embedded firmware, and reboot the unit.

In This Chapter

18.1 General



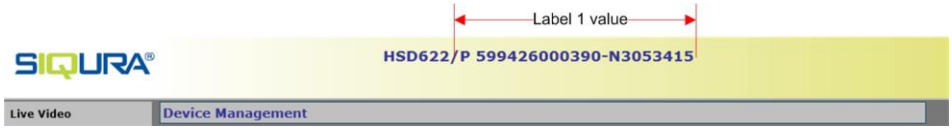
Device Management > General

18.1.1 Identification

This section offers administrative module information.

18.1.2 Device Name

Item	Description
Label 1	The Device name section contains label settings, which can be edited and saved. Values entered for the Label 1 and Label 2 variables are stored in the Management Information Base (MIB) of the module. The labels jointly constitute the device label, a user-friendly name for the physical device, which will serve to identify and address the module on the network when working with the MX network service and MX applications. The current value for Label 1 is displayed in the upper pane of the web pages.
Label 2	



Title pane with Label 1 value

18.1.3 Advanced

Device Management > General > Advanced

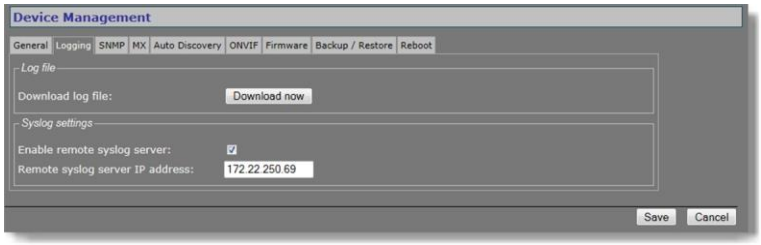
18.1.3.1 Alarm Settings

Item	Description
Board temperature alarm	A notification is issued on the network when the temperature value set here is exceeded. Module alarms can be read and processed using additional Siqura software (which will also enable you to configure alarm levels and destinations).

18.1.3.2 LED control

Item	Description
Disable LEDs	For security reasons or energy efficiency you can deactivate all LEDs on the unit here.
Flash DC LED	Range: [0 …1000]. To identify a HSD62x among other units, enter a value and click **Save**. The power LED on this particular unit will blink for the number of seconds you set.

18.2 Logging



Device Management > Logging

18.2.1 Log file

Press the *Download now* button to download a log file from the HSD62x to your computer. The 'system.log' file which opens in Notepad may prove useful when you are troubleshooting issues.

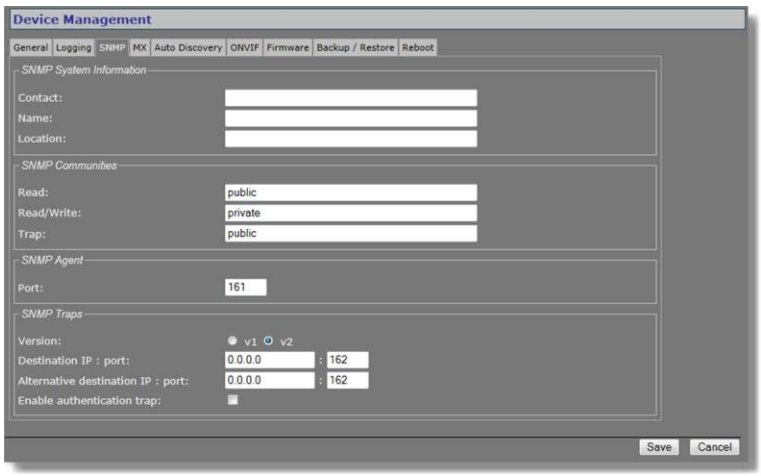
18.2.2 Syslog settings

Syslog is a standard which allows devices to send event notification messages over IP networks to event message collectors, also known as syslog servers.

To enable a remote syslog server

1. In *Syslog settings*, select **Enable remote syslog server**.
2. Specify the IP address of the remote syslog server.
3. Click **Save**.

18.3 SNMP



Device Management > SNMP

18.3.1 SNMP System Information

The SNMP System Information section shows the network/device data specifically made available to the SNMP manager for making the device, its location and service manager(s) traceable.

18.3.2 SNMP Communities

The community strings (names which can be regarded as passwords) in the SNMP Communities section must conform to those configured in the SNMP manager. Often, these are 'public', mainly used for the read and trap communities, and 'private' or 'netman', for read-write operations. The manager program may offer additional choices.

18.3.3 SNMP Agent

The module has an SNMP Agent running which listens for information requests from the SNMP manager on port 161 by default.

18.3.4 SNMP Traps

A HSD62x alarm status change generates a trap which can be caught by any SNMP manager. The HSD62x can, for example, send traps on the occurrence of Image Quality and Camera Tampering events. Variables, which can be read from the HSD62x's MIB through an SNMP manager, indicate why the alarm occurred. The OPTC-VCA-MIB required for this can be downloaded, together with the other HSD62x MIBs, at www.siqura.com.

Note that *Version* and *Destination IP : port* are required fields.

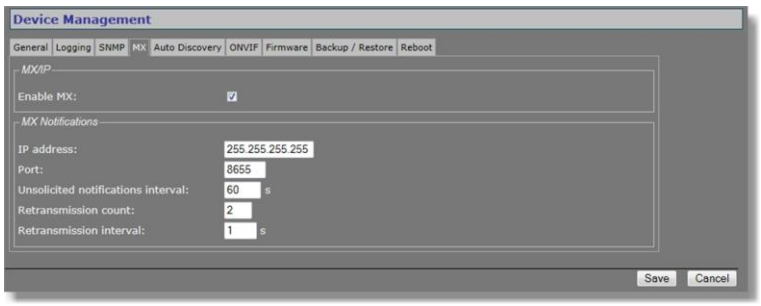
Item	Description
Version	The SNMP version used.
Destination IP : port	The IP address associated with the manager program, and the destination port

Item	Description (162 is the default port).
Alternative destination IP : port	If desired, an alternative destination IP address and port can be added.
Enable authentication trap	It is possible to add an authentication trap to be able to catch attempts at access using the wrong community string.

18.3.5 Polling

Depending on facilities offered by the SNMP manager, a number of variables can be read out and in a few cases be edited and set. The Ethernet port variables are contained in the 'system' and 'interfaces' sections of RFC 1213-MIB.

18.4 MX



Device Management > MX

18.4.1 MX/IP

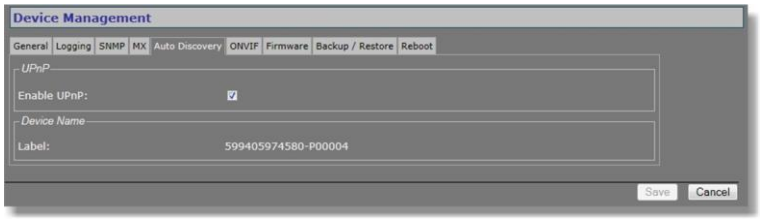
MX/IP is a UDP protocol used to communicate with Siqura equipment over a network connection. The Siqura Software Suite applications use the MX/IP protocol to access, configure, and control Siqura network devices.

Item	Description
Enable MX	In addition to the proprietary MX/IP protocol, a HSD62x can be accessed, configured and managed using a variety of open standards. Therefore, you can disable the MX protocol. Be aware that doing so will prevent you from upgrading the HSD62x firmware through the MX Firmware Upgrade Tool application.

18.4.2 MX Notifications

Item	Description
IP address	With 255.255.255.255 as the IP address for the manager, the MX notifications would be broadcast over the subnet.
Port	Generally, the MX notifications port must not be modified.
Unsolicited notifications interval	Sends the module status as MX notification at the specified interval to be picked up by a management program.
Retransmission count	If desired, notifications can be retransmitted. With a retransmission count value of 2, the actual number of transmissions equals 3 (including the original transmission).
Retransmission interval	Sets the frequency of retransmissions.

18.5 Auto Discovery



Device Management > Auto Discovery

18.5.1 Advertise the HSD62x

On the Auto Discovery tab, you can enable UPnP (Universal Plug and Play). If enabled, UPnP allows the HSD62x to advertise its presence and services to control points on the network. A control point can be a network device with embedded UPnP, a VMS application or a spy software tool, such as Device Spy. With the UPnP service enabled in Windows (see *Appendix: Enable UPnP in Windows 7*), you can connect to the HSD62x from Windows Explorer.

18.5.1.1 Note

Note on UPnP: The goal of Universal Plug and Play (UPnP), a set of computer network protocols, is to enable peer-to-peer simple and robust connectivity among stand-alone devices and PCs from different vendors. UPnP networking involves (some or all of) the following steps.

Step 1: *Discovery*. Devices advertise their presence and services to a control point on the network. Control points can search for devices on the network. A discovery message is exchanged, containing a few essential specifics about the devices, e.g. its type, identifier and a pointer to more detailed information.

Step 2: *Description*. The control point can request the device's description from the URL provided in the discovery message. The device description is expressed in XML and includes vendor-specific information, such as the model name, serial number, manufacturer name, URLs to vendor-specific web sites.

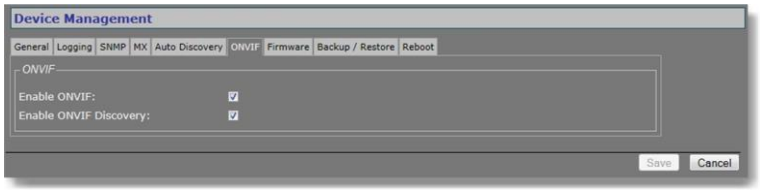
Step 3: *Control*. The control point can send actions to a device's service.

Step 4: *Event*. The control point listens to state changes in the devices.

Step 5: *Presentation*. If a device has a URL for presentation, the control point can display a page in a web browser, and – if the page offers these capabilities - allow the user to control the device and/or view the device status.

The HSD62x supports the following Universal Plug and Play (UPnP) functionality: *Discovery*, *Description* (partly supported), and *Presentation*.

18.6 ONVIF



Device Management > ONVIF

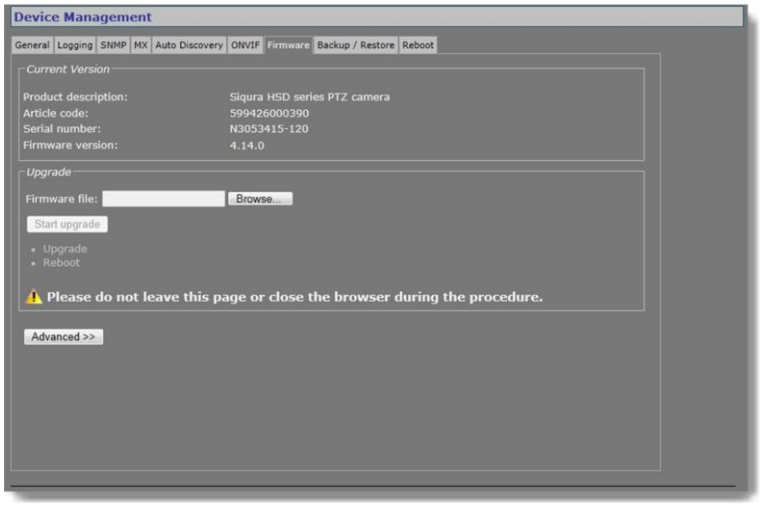
The HSD62x supports the ONVIF standard. On the ONVIF tab, you can enable ONVIF compatibility and ONVIF discovery.

Item	Description
Enable ONVIF	Enables the ONVIF interface on the HSD62x.
Enable ONVIF Discovery	Makes the HSD62x discoverable for ONVIF clients. Clear this check box if you prefer to disable discovery. In that case, the HSD62x can still be controlled from ONVIF clients that "know" of its existence.

18.6.1 Note

Note on ONVIF: The Open Network Video Interface Forum (ONVIF) is a global and open CCTV/security industry forum which aims to increase interoperability of cameras, codecs, and VMS and similar systems of different brands and manufacturers by standardising the discovery, management, control and other interfaces between them. The ONVIF architecture is largely built on top of web services. Web services typically use the HTTP protocol to exchange XML messages according to the Simple Object Access Protocol (SOAP) standard. A standardised API is defined between server and client devices. ONVIF defines an NVT (Network Video Transmitter) to model the server side (that is, codecs and cameras) and an NVC (Network Video Controller) to model the client side (that is, VMS systems and the like). The communication between NVC and NVT is standardised by the ONVIF core specification document and the API is formally defined by making use of WSDL (Web Service Description Language) files.

18.7 Firmware



Device Management > Firmware

18.7.1 Firmware images

The HSD62x has two firmware storage areas: a *fixed image* area and an *upgrade image* area. The fixed image area contains the original factory version of the firmware. This cannot be erased. The upgrade image area is usually empty upon factory release.

If the existing firmware in the HSD62x is to be replaced, a new version can be written to the upgrade image area. There, the new image resides in erasable (flash) memory.

An upgrade image can replace an existing upgrade image written to the device at an earlier upgrade. It is essential that the upgrade image is compatible with the HSD62x.

18.7.2 Current Version

This section offers information on the currently active firmware version.

18.7.3 Upgrade

This section of the webpage enables you to upgrade the firmware residing in the upgrade image area.

Important: On upgrading a HSD62x to firmware version 4.0 and higher, all existing users are deleted. After a successful upgrade, you can access the webpages with the default Admin account (user name = Admin; password = 1234).

Note: It is possible to use the upgrade section to downgrade a unit to an earlier version of the firmware. As a result, a unit may have version 4.0.1 in its fixed image area and version 3.12 in its upgrade image area, for example. After the downgrade, the unit can only be accessed by user "root" with a "1234" password. With these credentials, you can log on and then perform a reset to factory settings. This restores the default version 3.12 users - that is, "root" and "admin", both with an empty password.

To upgrade the HSD62x firmware

1. On the *Device Management* page, open the **Firmware** tab.
2. In the *Upgrade* section, click **Browse**.
3. In the *Choose File to Upload* dialog box, browse to the folder containing the firmware image.
4. Select the firmware file (`.sqrfw` extension), and then click **Open**.

Note: Files with an `.nkffw` extension cannot be used to upgrade the HSD62x via the webpage. You can use them to upgrade the unit through MX Firmware Upgrade Wizard. This software is embedded in Siqura's MX Configuration Tool and is also available as a stand-alone tool.

5. Click **Start upgrade**.
   Progress of the upgrade is shown under the *Start upgrade* button.

Important: Do not leave the Firmware tab or close your browser during the upgrade procedure.

   A "Successfully upgraded to version ..." message indicates a successful upgrade.
6. Click **refresh now** to refresh the web page immediately, or wait for it to refresh automatically after 30 seconds.
   The new software version displays in the Current Version section of the Firmware tab.

18.7.3.1 Troubleshoot upgrade issues

Successful upgrades are reported as "Successfully upgraded to version ..." In the event of an unsuccessful upgrade, the following error messages may help you pinpoint the cause of the problem.

- *Upgrade procedure already in progress*
  The unit received multiple upgrade requests at approximately the same time. However, only one request can be handled at a time. The later request receives this error message.
- *Invalid firmware file*
  The unit performs a number of checks to determine the validity of the file. If it finds problems with the file, such as the file not being a firmware file with a `.sqrfw` extension, it displays this error message.
- *Device hardware is incompatible*
  If the image identifier of the hardware does not match the image identifier of the firmware file, this error message indicates that the selected firmware file is not intended for the unit. In that case, the upgrade procedure is terminated. The fixed image and the upgrade image stay in the memory of the unit. After a reboot, the unit runs the **same image** as before the reboot.
- *Firmware file is corrupt*
  The firmware file contains a CRC error. When this error occurs, the unit reboots automatically and restarts with the **fixed image**.
- *Rule validation failed*
  The rules embedded in the firmware file and the result of checking these rules indicate that the firmware should not be installed on this unit.
- *Failed to write firmware to flash*
  The firmware file is streamed directly into flash. Various errors may occur while writing the firmware to flash. There may be connection loss, for example, or a reboot during the upgrade procedure. If any such error occurs, the unit reboots automatically and restarts with the **fixed image**.
- *Failed to revert back to the factory firmware.*
  This message displays in the unlikely case that something goes wrong reverting back to the factory-installed firmware.

18.7.3.2 Advanced

For various reasons you may want to downgrade the HSD62x firmware to the original factory-installed image kept in the fixed image area. This can be done in the Advanced Settings section of the Firmware tab.

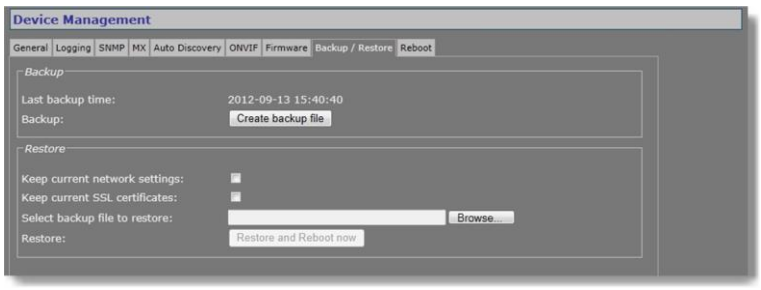
To revert to the HSD62x's fixed image

1. On the *Device Management* page, open the **Firmware** tab.
2. Click **Advanced >>**.
3. Click **Revert to factory version**.
4. To confirm the removal of the upgraded firmware, press **Continue**.
   Progress of the downgrade process is shown under the *Revert to factory version* button.

   Important: Do not leave the Firmware tab or close your browser during the downgrade procedure.

   A "Successfully reverted to version ..." message indicates a successful downgrade.
5. Click **refresh now** to refresh the web page immediately, or wait for it to refresh automatically after 30 seconds.
6. Log on to the unit again.
   On reopening the Firmware tab, the Current Version section has the version number of the factory-installed image.

18.8 Backup/Restore



Device Management > Backup / Restore

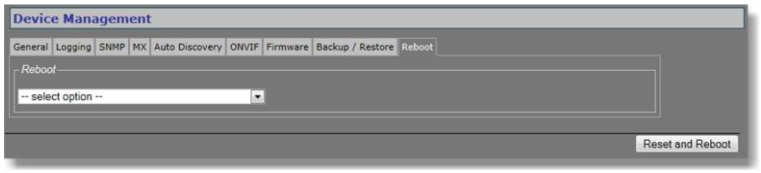
18.8.1 Backup

Item	Description
Last backup time	Date and time of the most recent backup.
Backup	Saves the current configuration of the HSD62x to the designated download folder.

18.8.2 Restore

Item	Description
Keep current network settings	Select to preserve the current network settings when you restore a backed-up HSD62x configuration.
Keep current SSL certificates	Select to preserve currently installed SSL certificates, if any, when you restore a backed-up HSD62x configuration.
Select backup file to restore	Browse for and select the backed-up HSD62x configuration you wish to restore.
Restore	Starts the restore process using the selected backup file.

18.9 Reboot



Device Management > Reboot

Item	Description
Reboot	Reboots the unit without resetting variables.
Reset to factory settings: keep network settings	Reset option for all variables that can be set by the user, with the exception of the network settings.
Reset to factory settings; incl. network settings	A complete reset which will restore the unit's settings, including the IP address/subnet mask, to their original, default values. This could make the unit unreachable for in-band communications, in which case the internal web pages are accessible only by (temporarily) moving a PC to the same subnet as the HSD62x.

19 User Management

The User Management page is accessible to users with an Admin account. On this page, Administrators can manage user accounts and set the Linux root password.

In This Chapter

19.1 Web Access

User Management > Web Access

19.1.1 Access control

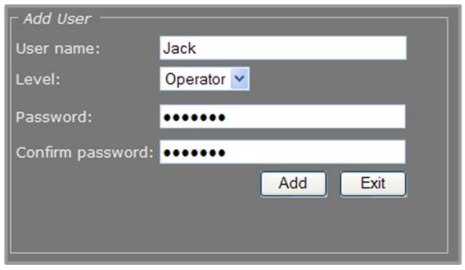
The HSD62x has three levels of access to the internal web pages. User groups are: *Administrators*, *Operators*, and *Viewers*. Do *not* use the name of one of these groups as a user name. Out of the box, the unit has no user accounts configured. The HSD62x supports up to 20 users at a time.

Important: On upgrading a HSD62x to firmware version 4.0 and higher, all existing users are deleted. After a successful upgrade, you can access the webpages with the default Admin account (user name = Admin; password = 1234).

19.1.2 Manage user accounts

To add a user

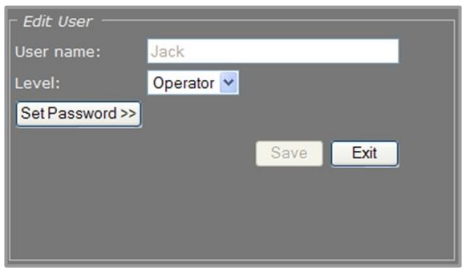
1. On the *User Management* page, open the **Web Access** tab.
2. In the *User List* section, click **Add**.
   The Add User section displays.
3. Enter the new user name (alphanumeric and underscore only) and password. Confirm the password to prevent errors.
4. Select the appropriate access level.
5. To write the settings into the unit, click **Add**.
   The user is added to the User List.



Adding a user

To edit a user

1. On the *User Management* page, open the **Web Access** tab.
2. Select the user name from the *User List*, and then click **Edit**.
   The Edit User section displays.
3. Modify the user name, permission level, and/or password.
4. To write the settings into the module, click **Save**.

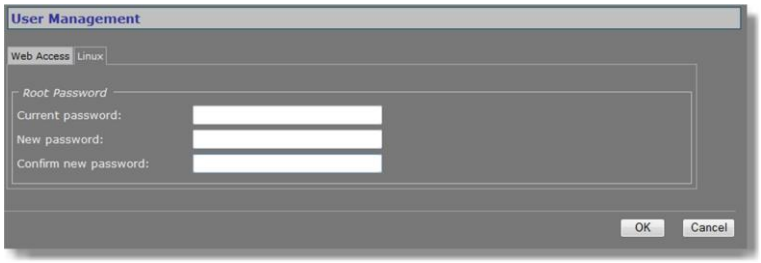


Editing a user

To delete a user

1. On the *User Management* page, open the **Web Access** tab.
2. Select the user name from the *User List*, and then click **Remove**.
3. To confirm the deletion, press **OK**.

19.2 Linux



User Management > Linux

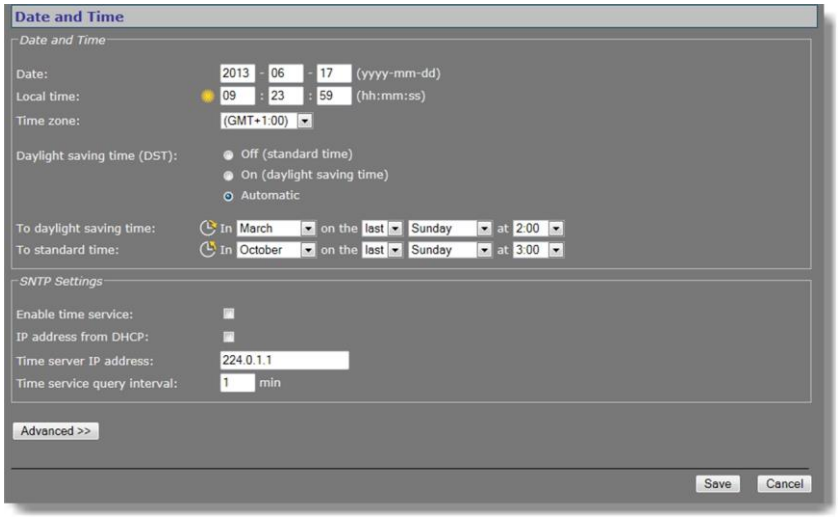
The root account is a special account that can be used for system administration. The account is always present and should be password protected at all times. The root password, which is required when logging on to Linux with root authority, is "1234" by default. Using the Linux tab an Admin can set or change the root password. Should you have forgotten the password to your Admin account and be locked out of the system, you can regain access by logging in as root with a valid root password. Through the root account you can then reset the Admin password.

20 Date and Time

The HSD62x has a battery-supported real-time clock. This chapter explains how to adjust the date and time.

In This Chapter

20.1 Date and time



Date and Time

You can set the date and time manually in the Date and Time section. Press **Save** to make your changes permanent.

On-screen date/time display can be activated on the OSD tab of the Video page. The on-screen position and colour of the text are governed by the relevant OSD settings.

To set the date and time manually

1. In the SNTP Settings section, clear **Enable time service**.
   This activates the Date and Local time text boxes.
2. Set the date and local time.
3. On the *Time zone* list, select your local zone.

To disable Daylight saving time

- Select **Off (standard time)**.
  Standard time will be used throughout the year.

To activate Daylight saving time manually

- Select **On (daylight saving time)**.
  This adds one hour to the currently configured local time. The unit will not automatically switch between summer and winter time.

To activate automatic Daylight saving time switchover

1. Select **Automatic**.
2. Use the *To daylight saving time* and *To standard time* lists to enter the appropriate start and end details.
   The unit will automatically adjust at the given dates and times.

	DST begins	DST ends
Australia	2:00 AM local time on first Sunday in October	3:00 AM local time on first Sunday in April
China	N/A	N/A
Europe	2:00 AM local time on last Sunday in March	3:00 AM local time on last Sunday in October
Russia	N/A	N/A
USA	2:00 AM local time on second Sunday in March	2:00 AM local time on first Sunday in November

20.2 SNTP Settings

The date and time can be adjusted automatically with the aid of a Simple Network Time Protocol (SNTP) server. If enabled, the SNTP server is queried automatically by the internal clocks, with a configurable time interval.

To set up the HSD62x for use with an SNTP server

1. In *SNTP Settings*, clear **Enable time service**, and then click **Save**.
2. In *Date and Time*, open the **Time zone** list, and then select your local zone.
3. Select the *Daylight saving time (DST)* option to be applied.
4. Click **Save**, and then wait for 2 seconds.
5. Set the **Date** and **Local time** values.
   A maximum error of 5 minutes is allowed for these settings.
6. Click **Save**.
7. In *SNTP Settings*, select **Enable time service**.
8. Select **IP address from DHCP** or specify the IP address of the time server.
   Assigning the IP address via DHCP requires that DHCP is enabled in section Advanced of the Network page.
9. Adjust the **Time service query interval** (if necessary), and then click **Save**.
   The unit will now synchronise (within the interval set in the SNTP Settings section) to the time server and remain synchronised, also after reboots.

Note: (S)NTP synchronisation is mandatory for ONVIF.

Notes for advanced users

- Far off (more than a few minutes) or jumping time server values may be rejected by the unit.
- You should *never* test the tracking to the time server by changing the time in the NTP server. You can only test it by leaving Time Service mode, changing "Local Time" slightly (max 5 minutes), and then enabling Time Service mode again.
- After detecting a negative time jump (between 0 … -1 hour), when connecting to the NTP server, for example, the next NTP client update cycle will be delayed for that time plus the normal polling interval. You may disable, and then enable NTP mode to immediately synchronise.
- Changing the local time may sometimes trigger a reboot of the unit. The time will be correct after the reboot.

20.3 Advanced

Date and Time > Advanced

As an alternative to using the the Date and Time section values to configure time zone and DST settings, you can go to Advanced Settings and enter custom settings there. You may, for example, need to set a time zone which is not included in the list. Once you have saved a custom value, the Time zone list in the Date and Time section indicates "User defined".

Custom time zones can have the Time zone list format or the POSIX 1003.1 time zone strings format as defined in *Standard for Information Technology - Portable Operating System Interface (POSIX) - Base Definitions, IEEE Std 1003.1-2004, December 2004*. The benefit of the POSIX format is that time zone and DST details can be specified more explicitly than through the Date and Time section.

Note: Adjusting time zone and DST settings through POSIX is recommended only for advanced users who are familiar with the intricacies of POSIX.

To adjust the time zone and DST through POSIX

1. Select **Time zone in POSIX**.
2. In the *User defined time zone* text box, enter a valid POSIX time zone string.
   If the string is recognised, the Date and Local time values in the Date and Time section are adjusted accordingly.

21 Multicasting, multi-unicasting, and port numbers

The HSD62x can be used in a multicast setting. This chapter outlines IP multicast and one of its methods in particular: source-specific multicast. It then describes the concept of multi-unicast. You also learn about assigning valid port numbers.

In This Chapter

21.1 Multicast

IP multicast

The HSD62x supports IP multicast. This is a method for 'one-to-many' real-time communication over an IP network. The technique can be used to send HSD62x media streams to a group of interested receivers in a single transmission. The intermediary network switches and routers replicate the data packets to reach the multiple receivers on the network. The switches and other network devices used must be carefully configured for, and capable of handling multicasting and its associated protocols (most notably IGMP). Packets should be sent over each link in the network only once. If not, broadcasting will occur, which can put a very heavy load on the network. This is a phenomenon inherent to multicasting and the facilities of network devices, not of the HSD62x itself, although it is compounded by the density of the UDP streams used.

Multicast group

A multicast group is used by the source, that is - the HSD62x, and the receivers to send and receive multicast messages. To define a multicast group, the source unit should be assigned a valid multicasting ('destination') TX stream address and the destination units should get this same address as source. IPv4 uses the address range 224.0.0.0 through 239.255.255.255 for multicast applications. The source unit has no knowledge of how many receivers there are. The group vanishes when the source is disabled, but the source will *not* automatically be disabled when the last remaining destination is cancelled and will keep transmitting at least towards the nearest switch. Additionally, it is possible to have the multicast group units send unsolicited membership reports, keeping it alive even if only one - any - unit of the group is still active.

Source-specific multicast

The HSD62x also supports source-specific multicast (SSM). This technique allows a receiver to specify a specific source sending to the multicast group and receive traffic originating from that source only. Singling out the source in this way can considerably reduce the network load. Note that SSM must be supported by the last-hop router and the receiver's operating system, and that the receiver requires IGMPv3 to be able to specify the specific source.

SSM is implemented on the encoder side, by having the unit transmit a multicast stream to the 232.x.x.x group (the range assigned to SSM) via RTSP. The Session Description Protocol (SDP) file generated by the RTSP server includes additional information containing the source IP (S) and the multicast group (G). The RTSP client in the decoder can then issue an IGMP join message containing S and G. The intermediary routers can use this information to determine the shortest path between encoder and decoder to route the multicast stream. On the decoder side, the user requests a stream from the encoder, using an SSM aware RTSP client (such as VLC, for example).

For more information on source-specific multicast, refer to the following.

rfc4607 http://tools.ietf.org/pdf/rfc4607.pdf
rfc4570 http://tools.ietf.org/pdf/rfc4570.pdf
rfc3569 ftp://ftp.rfc-editor.org/in-notes/pdfrfc/rfc3569.txt.pdf
rfc5760 http://www.rfc-editor.org/rfc/pdfrfc/rfc5760.txt.pdf

21.2 Multi-unicast

As an alternative to multicasting, the HSD62x features 'multi-unicasting', that is - sending out up to 4x3 independent copies of video, and 3 of audio, data and contact closure streams. If the bit rates selected are moderate, it may be more convenient to use this mechanism instead of multicasting, even though the network gets more signal to carry from the encoder.

When such a destination is removed, the source also stops sending the corresponding stream. If the input channel of a destination is disabled without disabling the source, source transmission will be throttled, but not disabled (this behaviour is selectable through the FloodGuard settings). The source downsizes the stream by sending empty UDP packets until a wake-up call is received. The empty packets, of course, carry the relevant IP/port information.

21.3 Port numbers

A valid UDP port number in a Siqura A-, C-, S-, and V-series system is an unsigned 16-bit integer between 1024 and 65536. Generally, you do not need to select other than the default receiver port numbers as given in the MIB (Management Information Base). If you want to change these receiver port numbers for some reason, use even numbers. A given receiver port number N is associated with the port number N+1, through which control information is returned to the source.

Eligible port numbers in general are within the range indicated above, with some exceptions. Those within the 3000-10000 range are reserved and/or hard-coded, or may become reserved, so only 10000-65535 are generally safe. Default port numbers (used by receivers) are shown in the following table.

General		Example	
Video	50xxx	Video	50010
Audio	51xxx	Audio	51010
Data	52xxx	Data 1	52010 (RS-4xx)
		Data 2	52020 (RS-232)
CC	53xxx	CC 1	53010
		CC 2	53020

Default port numbers

Siqura MX applications using automatic port number allocation may use 55000 and up.

22 Accessing and Navigating the On-Screen Menu

The HSD62x's On-Screen Menu (OSM) can be used to configure detailed camera functions and parameter settings. This chapter explains how to access and navigate this menu.

In This Chapter

22.1 IP Video Server Board OSD and Camera OSD

The HSD62x camera features two on-screen displays:

- IP video server board OSD
- Camera zoom block OSD

IP server board OSD

The OSD facilities generated by the HSD62x's built-in IP server board include texts and graphics that can be entered and edited through the OSD tab of the Video webpage, as described earlier in this manual.

Camera zoom block OSD

The OSD facilities governed by the HSD62x's camera zoom block enable you to configure camera functions, such as backlight, focus, white balance, and a great many other settings, through the On-Screen Menu (OSM). These facilities are covered in depth in the following chapter.

Important: The OSD controls generated by the IP server board and those generated by the camera zoom block are independent of one another. Text or graphics added or edited in one cannot be modified or deleted in the other.

22.2 Using the On-Screen Menu

You can operate and set up the HSD62x dome camera through its on-screen menu (OSM). The OSM can be accessed via the Live Video web page or a control keyboard or other control device.

22.2.1 Working with the OSM from the web interface

To display the on-screen menu

1. In your web browser, open the HSD62x's Live Video page.
2. Go to the On Screen Menu section of the PTZ control panel, and click the **On** button.
   The control panel expands, showing additional buttons.
   Main Page 1 of the OSM displays in the preview.

Activate On Screen Menu with 'On' button

Control panel with additional buttons (bottom right) and preview with on-screen menu

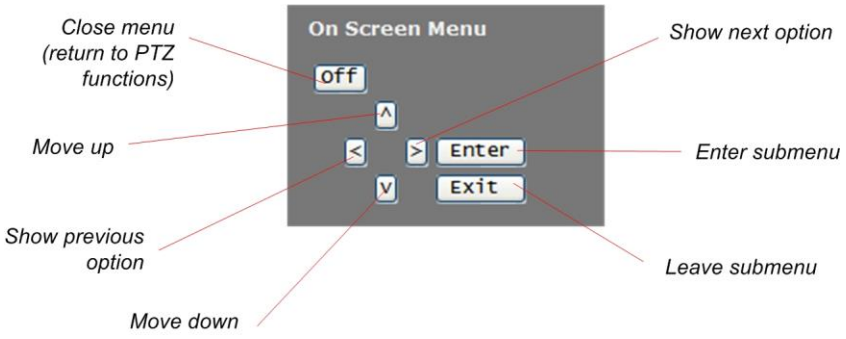
Note: The active selection blinks at the same rate as the configured refresh rate. OSD navigation is easier at higher refresh rates.

To select a menu option

- Use the direction keys in the control panel to move the cursor in the on-screen menu.

To configure an item

- Use the direction keys to move the cursor in the on-screen menu.
- For menu items followed by →, click the LEFT/RIGHT direction keys to select.
- For menu items followed by ↓, press the ENTER key or OK to enter the submenu.
- For items with →↓, use the LEFT/RIGHT direction keys to select functions, then press the ENTER key or OK to open submenus.



On-screen menu control buttons

22.2.2 Using the OSM from a control keyboard

To enter the on-screen menu with a control keyboard

- Using the Pelco D protocol, enter **95** and then **Preset**.

To navigate the on-screen menu with joystick or direction keys

- Use the UP/DOWN buttons (or direction keys) to move the cursor up and down the on-screen menu.
- For menu items with an arrow pointing to the right →, pan LEFT/RIGHT or use the direction keys to select a menu option or show a submenu.
- For menu items with an arrow pointing down ↓, use the Preset 95 command to enter the submenu.
- For menu items with both an arrow pointing to the right and an arrow pointing downwards →↓, pan LEFT/RIGHT or use the direction keys) to select a menu option or use the Preset 95 command to open submenus.

If the keyboard has an open/close iris control, you may use:

- **Open iris** to enter a submenu.
- **Close iris** to exit a submenu or to exit the on-screen menu.

Additional commands from a keyboard

The single contact closure output can be controlled with the following Pelco-D commands.

- Alarm Output On - **Set** Preset 9 6
- Alarm Output Off - **Go** Preset 9 6

For further special preset commands, see Appendix: Hot Key Definitions.

22.2.3 OSM access summary

The on-screen menu controls in the web interface are designed to mimic those of a control keyboard.

Action	Web Interface	Control Keyboard
Move up/down the menu	Click the up/down arrows	Tilt the joystick up or down or use the up and down arrow keys.
Select a menu option or show submenu	Click the left or right arrows	Pan the joystick left or right or use the left and right arrow keys.
Enter submenu	Click OK or the Enter button	Press the Open Iris button or use Set/Get Preset 95
Exit submenu or on-screen menu	Click the Exit button	Press the Close Iris button or use Set/Get Preset 95

On-screen menu control instructions

23 Camera Configuration via the On-Screen Menu

The HSD62x's On-Screen Menu (OSM) can be used to configure detailed camera functions and parameter settings. This chapter provides a detailed description of OSM structures, settings, and values for the various models of the HSD62x series.

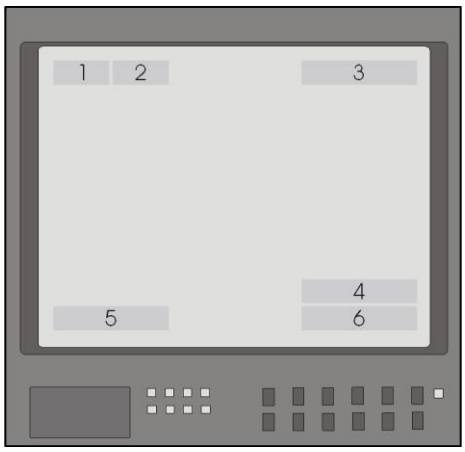
In This Chapter

23.1 Displaying Camera Parameters on Screen.

Certain camera parameters can be selectively displayed on screen as described below.

Position	Function	OSD Display	Description
1	Focus modes	A	Auto focus mode
		M	Manual focus mode
2	Backlight	X	Backlight compensation OFF
		B	Backlight compensation ON
3	Alarm	ALARM	Alarm message
4	Zoom ratio	x1	Present zoom ratio (Optical zoom/Digital zoom)
5	Title	Maximum 20 characters for each title. 16 sets of title are available.	
6	Camera ID	Show the camera ID (not recommended as this value is fixed at 001).	

OSD summary, for positions see below



On-screen display positions

23.2 On-Screen Menu Tree

The OSM camera setup menu structure is listed in the following tables. For a more detailed description of specific functions, refer to On-Screen Menu Description.

23.2.1 Siqura HSD620/620PRH/622

Item	Layer 1	Layer 2	Layer 3	Default
LANGUAGE	ENGLISH, FRENCH, GERMAN, ITALIAN, PORTUGUESE, SPANISH, RUSSIAN, POLISH, SIMPLIFIED CHINESE, TRADITIONAL CHINESE, JAPANESE, TURKISH			ENGLISH
DEFAULT CAMERA	<ON>, <OFF>			OFF
BACKLIGHT	<ON>, <OFF>			OFF
FOCUS	AUTO	AF MODE <NORMAL>, <INTERVAL>, <ZOOM TRIG>		AUTO
	MANUAL			
AE MODE	EXPOSURE COMP.	<OFF>, EXPOSURE VALUE: <-10.5dB> ~ <10.5dB>		OFF
	AE MODE	AUTO	BRIGHT VALUE, SHUTTER SPEED, IRIS VALUE, GAIN VALUE: AUTO	
			EXIT + SAVE: YES	
		SHUTTER	BRIGHT VALUE: AUTO	
			SHUTTER SPEED <1/50> ~ <1/10000> SEC. -or- SHUTTER SPEED <1/60> ~ <1/10000> SEC.	
			IRIS VALUE: AUTO	
			GAIN VALUE: AUTO	
			EXIT + SAVE: YES	
		IRIS	BRIGHT VALUE: AUTO	
			SHUTTER SPEED: AUTO	
			IRIS VALUE: <F1.6>	
			GAIN VALUE: AUTO	
			EXIT + SAVE: YES	

Item	Layer 1	Layer 2	Layer 3	Default
		AGC	BRIGHT VALUE: AUTO	
			SHUTTER SPEED: <1/50> ~ <1/10000> SEC.	
			IRIS VALUE: <F1.6>	
			GAIN VALUE <-3>dB ~ <28>dB	
			EXIT + SAVE: YES	
	EXIT	YES		
WBC MODE	AUTO (Auto White Balance)			
	INDOOR			
	OUTDOOR			
	ATW (Autotracing WBC)			
	MANUAL	R GAIN <000> ~ <127>		
		B GAIN <000> ~ <127>		
		EXIT + SAVE: YES		
SETUP MENU 1	ENTER	ZOOM SPEED	<1> ~ <8>	8
		DIGITAL ZOOM	<ON>, <OFF>	OFF
		SLOW SHUTTER	<ON>, <OFF>	OFF
		IMAGE INVERSE	<ON>, <OFF>	OFF
		FREEZE	<ON>, <OFF>	OFF
		APERTURE	<01> ~ <16>	07
		EXIT	<YES>	
SETUP MENU 2	ENTER	FLIP	<OFF>, <M.E.>, <IMAGE>	OFF
			EXIT + SAVE: YES	
		ANGLE ADJUSTER	MIN ANGLE <0 ~ +10 DEG>	00
			MAX ANGLE <080 ~ 100 DEG>	90
			EXIT + SET	YES
		PT POSITION	PT DISPLAY <ON>, <OFF>	OFF
			SET PAN ZERO <PT MOVE>, <TO SAVE>	
			EXIT + SET	
		SPEED BY ZOOM	<ON>, <OFF>	OFF
		AUTO CALI.	<ON>, <OFF>	OFF
		PASSWORD	<ON>, <OFF>	OFF

Item	Layer 1	Layer 2	Layer 3	Default
		OSD AUTO CLOSE	<OFF>, <10> ~ <30> SEC.	20
		SYSTEM RESET	SYSTEM RESET <YES>	
			DEFAULT SYSTEM <YES>	
		EXIT	<YES>	
ID DISPLAY	<ON>, <OFF>			ON
TITLE DISPLAY	<ON>, <OFF>			OFF
TITLE SETTING	<01> ~ <16>			01
PRESET	PRESET SET	<001> ~ <256>		ENTER
	PRESET RUN	<001> ~ <256>		ENTER
	EXIT	YES		
SEQUENCE	ENTER	SEQUENCE LINE	<1> ~ <8>	1
		SEQUENCE POINT	<01> ~ <64>	01
		PRESET POSITION	<001> ~ <255>, <END>	001
		SPEED	<01> ~ <15>	01
		DWELL TIME	<000> ~ <127> SEC	000
		RUN SEQUENCE	ENTER	
		EXIT	<YES>	
AUTOPAN	ENTER	AUTOPAN LINE	<1> ~ <4>	1
		START POINT	<TO FIND>, <TO SAVE>	
		END POINT	<TO FIND>, <TO SAVE>	
		DIRECTION	<RIGHT>, <LEFT>	RIGHT
		SPEED	<01> ~ <04>	01
		RUN AUTOPAN		
		EXIT	YES	
CRUISE	ENTER	CRUISE LINE	<1> ~ <8>	1
		RECORD START	ENTER	
		RECORD END	ENTER	
		RUN CRUISE	ENTER	
		EXIT	YES	
HOME SETTING	ENTER	HOME FUNCTION	<ON> ~ <OFF>	OFF
		SELECT MODE	PRESET	
			SEQUENCE	
			AUTOPAN	

Item	Layer 1	Layer 2	Layer 3	Default
			CRUISE	
		PRESET POINT	<001> ~ <256>	001
		SEQUENCE LINE	<001> ~ <008>	001
		AUTOPAN LINE	<001> ~ <004>	001
		CRUISE LINE	<001> ~ <008>	001
		RETURN TIME	<001> ~ <128> MIN.	001
		GO	ENTER	
		EXIT	YES	
IR FUNCTION	AUTO	THRESHOLD <MID>, <HI>, <LOW>		
		EXIT + SAVE: YES		
	MANUAL	IR MANUAL: <ON>, <OFF>		
		EXIT + SAVE: YES		
ALARM SETTING	<NONE>			
ALARM DETECT	<NONE>			
WDR FUNCTION	<ON>, <OFF>			OFF
PRIVACY MASK	PRIVACY SWITCH	<ON>, <OFF>		
	TRANSPARENCY	<ON>, <OFF>		
	COLOUR	<BLACK>, <WHITE>, <RED>, <GREEN>, <BLUE>, <CYAN>, <YELLOW>, <MAGENTA>		
	SET MASK	<01> ~ <24>	H CENTER: L/R	
			V CENTER: D/U	
			H SIZE <000> ~ <080>	
			V SIZE <000> ~ <060>	
			EXIT + SAVE	
	CLEAR MASK	<01> ~ <16>		
	EXIT	YES		
TIME SETTING	NONE			
SCHEDULE	NONE			
EXIT OSD	YES			

23.2.2 Siqura HSD621PRH/626/626EXP

Item	Layer 1	Layer 2	Layer 3	Default
LANGUAGE	ENGLISH, FRENCH, GERMAN, ITALIAN, PORTUGUESE, SPANISH, RUSSIAN, POLISH, SIMPLIFIED CHINESE, TRADITIONAL CHINESE, JAPANESE, TURKISH			ENGLISH
DEFAULT CAMERA	<ON>, <OFF>			OFF
BACKLIGHT	00 ~ 30			20
FOCUS	AUTO	1.5M, 1M, 30CM, 10CM, 1CM		10CM
	MANUAL	FOCUS SPEED 0 ~ 3		1
AE MODE	EXPOSURE COMP.	<OFF>, EXPOSURE VALUE: <-10.5dB> ~ <10.5dB>		OFF
	AE MODE	AUTO	IRIS OFFSET: 00 ~ 15	
			EXIT + SAVE: YES	
		SHUTTER	BRIGHT VALUE: AUTO	
			SHUTTER SPEED <1/2> ~ <1/30000> SEC.	
			IRIS VALUE: AUTO	
			GAIN VALUE: AUTO	
			EXIT + SAVE: YES	
		IRIS	BRIGHT VALUE: AUTO	
			SHUTTER SPEED: AUTO	
			IRIS VALUE: 00 ~ 09	
			GAIN VALUE: AUTO	
			EXIT + SAVE: YES	
		AGC	BRIGHT VALUE: AUTO	
			SHUTTER SPEED: <1/50> ~ <1/10000> SEC.	
			IRIS VALUE: <F1.6>	
			GAIN VALUE 00 ~ 09	
			EXIT + SAVE: YES	
	EXIT	YES		
WBC MODE	AUTO (Auto White Balance)			

Item	Layer 1	Layer 2	Layer 3	Default
	MANUAL	R GAIN <000> ~ <099>		050
		B GAIN <000> ~ <099>		050
		EXIT + SAVE: YES		
SETUP MENU 1	ENTER	ZOOM SPEED	FAST, SLOW	FAST
		MAX DIGITAL ZOOM	<00> ~ <12>, <OFF>	OFF
		SLOW SHUTTER	<1/1.5> ~ <1/50> (PAL)	OFF
		D.N.R.	<01> ~ <04>, <OFF>	OFF
		IMAGE INVERSE	<ON>, <OFF>	OFF
		FREEZE	<ON>, <OFF>	OFF
		APERTURE	<01> ~ <16>	07
		STABILISER	<OFF>, <5HZ>, <10HZ>	
		EXIT	<YES>	
SETUP MENU 2	ENTER	FLIP	<OFF>, <M.E.>, <IMAGE>	OFF
			EXIT + SAVE: YES	
		ANGLE ADJUSTER	MIN ANGLE <0 ~ +10 DEG>	00
			MAX ANGLE <080 ~ 100 DEG>	90
			EXIT + SET	YES
		PT POSITION	PT DISPLAY <ON>, <OFF>	OFF
			SET PAN ZERO <PT MOVE>, <TO SAVE>	
			EXIT + SET	
		SPEED BY ZOOM	<ON>, <OFF>	OFF
		AUTO CALI.	<ON>, <OFF>	OFF
		PASSWORD	<ON>, <OFF>	OFF
		OSD AUTO CLOSE	<OFF>, <10> ~ <30> SEC.	20
		SYSTEM RESET	SYSTEM RESET <YES>	
			DEFAULT SYSTEM <YES>	
		EXIT	<YES>	
ID DISPLAY	<ON>, <OFF>			ON
TITLE DISPLAY	<ON>, <OFF>			OFF
TITLE SETTING	<01> ~ <16>			01

Item	Layer 1	Layer 2	Layer 3	Default
PRESET	PRESET SET	<001> ~ <256>		ENTER
	PRESET RUN	<001> ~ <256>		ENTER
	EXIT	YES		
SEQUENCE	ENTER	SEQUENCE LINE	<1> ~ <8>	1
		SEQUENCE POINT	<01> ~ <64>	01
		PRESET POSITION	<001> ~ <255>, <END>	001
		SPEED	<01> ~ <15>	01
		DWELL TIME	<000> ~ <127> SEC	000
		RUN SEQUENCE	ENTER	
		EXIT	<YES>	
AUTOPAN	ENTER	AUTOPAN LINE	<1> ~ <4>	1
		START POINT	<TO FIND>, <TO SAVE>	
		END POINT	<TO FIND>, <TO SAVE>	
		DIRECTION	<RIGHT>, <LEFT>	RIGHT
		SPEED	<01> ~ <04>	01
		RUN AUTOPAN		
		EXIT	YES	
CRUISE	ENTER	CRUISE LINE	<1> ~ <8>	1
		RECORD START	ENTER	
		RECORD END	ENTER	
		RUN CRUISE	ENTER	
		EXIT	YES	
HOME SETTING	ENTER	HOME FUNCTION	<ON> ~ <OFF>	OFF
		SELECT MODE	PRESET	
			SEQUENCE	
			AUTOPAN	
			CRUISE	
		PRESET POINT	<001> ~ <256>	001
		SEQUENCE LINE	<001> ~ <008>	001
		AUTOPAN LINE	<001> ~ <004>	001
		CRUISE LINE	<001> ~ <008>	001
		RETURN TIME	<001> ~ <128> MIN.	001
		GO	ENTER	
		EXIT	YES	

Item	Layer 1	Layer 2	Layer 3	Default
IR FUNCTION	<AUTO>, <ON>, <OFF>	THRESHOLD	<01> ~ <12>	
		IR COLOUR	<B/W>, <COLOUR>	
ALARM SETTING	<NONE>			
ALARM DETECT	<NONE>			
WDR FUNCTION	<AUTO>			
	<ON>	RATIO LEVEL	<001> ~ <128>	
		SHUTTER SPEED	<001> ~ <128>	
		IRIS OFFSET	<001> ~ <128>	
		EXIT	YES	
	<OFF>			
PRIVACY MASK	PRIVACY SWITCH	<ON>, <OFF>		
	MASK SHADE	<BLACK>, <WHITE>, <GRAY>, <MOSAIC 1>, <MOSAIC 2>, <MOSAIC 3>		
	ZOOM FACTOR	<ON>	SET ZOOM LIMIT <Z. MOVE>, <TO SAVE>	
		<OFF>		
	SET MASK	<01> ~ <08>	H CENTER <000 ~ 255>	
			V CENTER <000 ~ 255>	
			H SIZE <000> ~ <127>	
			V SIZE <000> ~ <127>	
			EXIT + SAVE	
	CLEAR MASK	<01> ~ <08>		
	EXIT	YES		
TIME SETTING	NONE			
SCHEDULE	NONE			
EXIT OSD	YES			

23.3 On-Screen Menu Description

The detailed functions and parameter setting of your high-speed dome camera can be set through the OSM (on-screen menu) via the camera's web interface or by using a control device such as a control keyboard. The items in each model's OSM are described in the following sections.

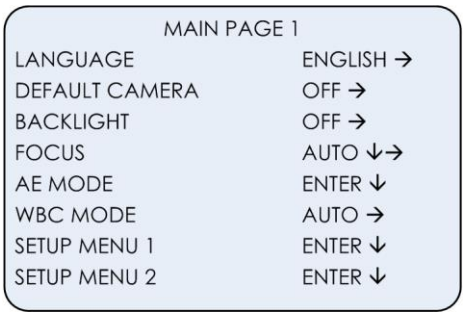
For external devices, the camera is configured to the Pelco D protocol. The HSD62x's default baud rate is set to 9600. Ensure that your control keyboard uses a compatible baud rate. The factory set ID number is 1 and you must not change this setting. For applications that require a unique RS-485 ID, please contact Siqura for assistance.

The command to enter the OSD menu is specific to the control keyboard. For example, keyboards using the Pelco-D protocol use Set/Get Preset 95 to enter the OSD menu. Use your system controller to enter the OSD menu.

For further setup procedures or information on how to enter the various menus, please refer to your control device's user manual.

23.3.1 Main Page 1

MAIN PAGE 1 is the home page of the On-Screen Menu (OSM). Accessing the OSM is described in *Accessing and Navigating the On-Screen Menu* (on page 153).



23.3.1.1 Language

The camera supports multi-language OSM operation; the available languages include English, Chinese, Spanish, Portuguese, French, German, Italian, Polish, Russian, Japanese, and Turkish. You can directly set the language on the MAIN PAGE 1 menu. As you select a language with the arrow keys, the OSD automatically changes to the language you select. The default language is ENGLISH.

23.3.1.2 Default Camera

The DEFAULT CAMERA option is used to restore some camera settings to factory defaults. The settings that are affected include backlight compensation, focus, auto exposure (AE), white balance control (WBC), aperture, zoom speed, and digital zoom. Once any one of the items is modified, the setting changes to OFF automatically. Select **ON** for an item to recall the specified parameters.

23.3.1.3 Backlight Compensation

The Backlight compensation function prevents the center object from being too dark in surroundings where there is excessive light behind the object.

Siqura HSD620/620PRH/622

1. Select **ON** to activate the function.
   The center object will be brightened in contrast to the edges of the picture.
2. After configuring backlight, go back to Main Page 1 and set the focus-relevant values.

Siqura HSD621PRH/626/626EXP

The Backlight Compensation Level ranges from 00 to 30 are available after BLC is enabled.

Note: If this function is enabled, the WDR function is disabled automatically. For details, refer to *WDR Function* (on page 184).

After configuring backlight, go back to **MAIN PAGE 1** and set the focus-relevant values.

23.3.1.4 Focus

The focus of the dome camera can be operated in two modes: Auto Focus and Manual Focus. Various settings for the different models are described below.

AUTO: Siqura HSD620/620PRH/622

The optimum focus is achieved by the internal digital circuit. There are three modes for users to select for different conditions:

- **Normal AF (Auto Focus) Mode**

  The dome automatically adjusts the focus of the picture.

- **Zoom Trigger Mode**

  When users press the TELE or the WIDE keys on a control device to change the zoom, the dome automatically adjusts its focus after a specified period of time (the initial preset value is five seconds) until such commands are terminated.

- **Interval AF Mode**

  This mode is used for AF movements carried out at particular intervals. If users pan/tilt the dome, the dome focuses automatically after a specified period of time. The initial value is five seconds.

AUTO: Siqura HSD621PRH/626/626EXP

The optimum focus is achieved by the internal digital circuit. Users can adjust the minimum auto focus range for some special conditions; the options include 1.5 m, 1 m, 30 cm, 10 cm, and 1 cm.

MANUAL: Siqura HSD620/620PRH/622

In this focus mode, users can adjust the focus speed, ranging from 01 ~ 08.

MANUAL: Siqura HSD621PRH/626/626EXP

In this focus mode, users can adjust the focus speed from 0 ~ 3.

After configuring focus, go back to **MAIN PAGE 1** to set the AE mode.

23.3.1.5 Auto Exposure

Exposure is the amount of light received by the image sensor and is determined by how wide you open the lens diaphragm (iris adjustment), by how long you keep the sensor exposed (shutter speed), and by other exposure parameters. Under this menu, users can define how the Auto Exposure (AE) function works.

AE MODE: Siqura HSD620/620PRH/622

- **AUTO**

  In this mode, the camera's Brightness, Shutter Speed, IRIS and AGC (Auto Gain Control) control circuits work together automatically to achieve a consistent video output level.

- **BRIGHTNESS**

  The brightness control function adjusts IRIS and AGC using an internal algorithm. Brightness is controlled by gain when the light condition is dark and by iris when the light condition is bright. The bright value ranges from 00 ~ 31.

- **SHUTTER**

  With this option, shutter speed controls the exposure, and both IRIS and AGC function automatically in cooperation with shutter speed to achieve consistent exposure output. The shutter speed ranges from 1/10000 ~ 1.

- **IRIS**

  In this mode, the iris function controls the exposure. Shutter speed and AGC circuit function automatically in cooperation with the iris function to achieve consistent exposure output. The opening of a lens controls the amount of light reaching to the surface of the selected device. Increase the F-stop number (F1.6, F2, F2.4, etc.) to permit less light to pass. Options range from F1.6 ~ F28.

- **MANUAL**

  In this mode, users can adjust shutter speed (1/10000 ~ 1), iris value (F1.6 ~ F28) and gain value (-3dB ~ 28dB).

- **EXPOSURE COMPENSATION**

  The exposure value ranges from -10.5dB ~ 10.5dB. Select **OFF** to disable the function.

AE MODE: Siqura HSD621PRH/626/626EXP

- **AUTO**

  In this mode, the camera's Shutter, IRIS and AGC control function work automatically to compensate the light exposure of the image sensor for consistent video output level. IRIS OFFSET is used to set the level of IRIS variation (00 ~ 15).

- **SHUTTER**

  With this option, the SHUTTER has priority over IRIS and AGC; the IRIS and AGC circuits function automatically in cooperation with SHUTTER to achieve consistent exposure. The range of shutter speed is 1/30000 ~ 1/2.

- **IRIS**

With this option, the priority of IRIS is higher than SHUTTER and AGC; SHUTTER and AGC circuit function automatically in cooperating with IRIS to get consistent exposure. The range of Iris level is between 00 and 09.

- **AGC**

  With this option, the priority of AGC is higher than those of SHUTTER and IRIS; the SHUTTER and IRIS circuits function automatically in cooperation with AGC to achieve consistent exposure. The range of AGC level is from 00 ~ 05.

After setting these parameters, exit the **AE MODE** menu and return to **MAIN PAGE 1** to set White Balance Control.

23.3.1.6 White Balance Control

A camera needs to measure the quality of a light source and create a reference colour temperature in order to calculate all the other colours. The unit for measuring this ratio is in degree Kelvin (K). Users can select one of the white balance control (WBC) modes, according to the operating environment. The table below provides the colour temperatures of some light sources as a general reference.

Light source	Colour temperature in K
Cloudy sky	6,000 to 8,000
Noon sun and clear sky	6,500
Household lighting	2,500 to 3,000
75-watt bulb	2,820
Candle flame	1,200 to 1,500

Light source reference

WBC MODE: Siqura HSD620/620PRH/622

- **AUTO**

  In this mode, white balance works within its colour temperature range. This mode computes the white balance value output using colour information from the entire screen.

- **INDOOR**

  3200 K Base mode.

- **OUTDOOR**

  5800 K Base mode.

- **ATW (Auto Tracing White Balance)**

  The dome takes out the signals in a screen in the range from 2000 K to 10000 K.

- **MANUAL**

  In this mode, users can change the White Balance value manually; R gain and B gain are adjustable and range from 0 to 127.

WBC MODE: Siqura HSD621PRH/626/626EXP

- **AUTO**

  In this mode, white balance works within its colour temperature range and calculates the most appropriate white balance.

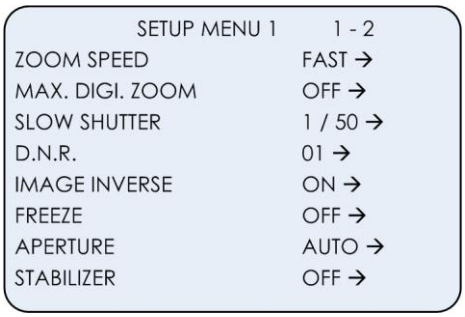
- **MANUAL**

  In this mode, users can change the value manually; adjustable R gain and B gain range from 00 to 99.

After configuring WBC-relevant parameters, exit the WBC Mode menu and return to **MAIN PAGE 1** to continue to set other functions under Setup Menu 1.

23.3.2 Setup Menu 1

SETUP MENU 1 is accessed from the MAIN PAGE 1 menu.



23.3.2.1 Zoom Speed

This item is used to set the zoom speed of the dome camera.

Siqura HSD620/620PRH/622

For these models, the zoom speed value ranges from 1 (slow) to 8 (fast, default).

Siqura HSD621PRH/626/626EXP

For this model, the options are FAST (default) and SLOW.

23.3.2.2 Max Digital Zoom

With this item, users can enable or disable the 12× Digital Zoom. When enabled, Digital Zoom is activated after the full Optical Zoom level is reached.

Siqura HSD620/620PRH/622

The maximum 12× Digital Zoom function may be enabled. The default setting is ON.

Siqura HSD621PRH/626/626EXP

For this model, the digital zoom ratio is adjustable from 02 to 12. The default setting is OFF.

Note on digital and optical zoom: The difference between optical and digital zoom is that optical zoom uses the lens within the camera to draw the image closer via zoom in or out to achieve the desired effect. Optical zoom retains the resolution of the zoomed image. On the other hand, digital zoom takes a portion of the image and expands that portion to the full size of the image; image quality is thereby reduced.

23.3.2.3 Slow Shutter

The shutter speed determines how long the image sensor is exposed to light. To see clear images in a dark environment, enable this function and select a slower shutter speed.

Siqura HSD620/620PRH/622

When the digital slow shutter function is enabled, the dome automatically adjusts the shutter speed based on the light conditions of the installation environment. It enables users to see objects in a dark environment under 0.2 lux.

Siqura HSD621PRH/626/626EXP

The shutter speed is adjustable in this model. With the slowest shutter speed, users can see objects in a dark environment under 0.2 lux or see smooth video images with a higher shutter speed. The options are from 1/2 to 1/60 for NTSC and 1/1.5 to 1/50 for PAL.

23.3.2.4 DNR

With 2D / 3D Noise Reduction, the processor analyses pixel by pixel and frame by frame to eliminate environmental noise signal so that the highest quality image can be produced even in low light conditions. In comparison with 2D DNR, 3D DNR generates better denoising effects.

Siqura HSD620/620PRH/622

Settings are 2D/3D.

Siqura HSD621PRH/626/626EXP

Settings are OFF, 01-04. Default=OFF. Level 4 achieves the best denoising results.

23.3.2.5 Image Inverse

Users can select **ON** to rotate the displayed image both vertically and horizontally. Application: Images are reversed when the dome is placed on a desk top in a conference, for instance.

The default setting is OFF.

Note: When this function is enabled in this model, the privacy mask(s) are disabled automatically; see Privacy Mask.

23.3.2.6 Freeze

The Freeze function allows to hold the image while the camera is moving between preset positions such as in *Preset* (on page 176) and *Sequence* (on page 177) modes. For example, when the dome camera is manipulated to run from point A to point B, if the Freeze function is activated, the first view that users would see is point A. Then the next view would directly change to point B, without displaying the moving path.

The default setting is OFF.

23.3.2.7 Aperture

Under this setup menu, users can enhance the edges of objects in an image.

Siqura HSD620/620PRH/622

There are 16 levels of adjustment; the options are 01 (no enhancement) to 16 (full enhancement). When shooting text, this function sharpens it.

Siqura HSD621PRH/626/626EXP

Users can select either the **AUTO** mode or **MANUAL** mode. Under the MANUAL mode, the parameters of the H and V apertures are adjustable from 00 to 31. Default is 15 for each.

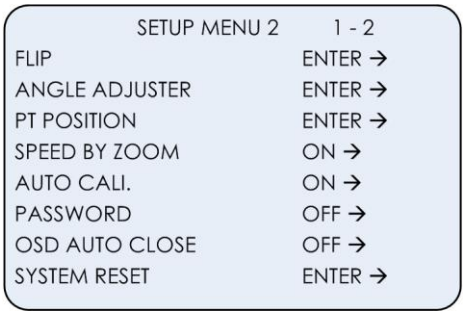
23.3.2.8 Stabiliser (HSD621PRH/626)

With the Image Stabiliser function enabled, the speed dome camera can capture images that would otherwise be blurred due to vibration. Built-in electronic compensation filters out the vibrations of up to 80% movement at 10Hz, as caused by wind and other environmental conditions. Its various detection modes ensure total detection in all types of environments. When activated, users can select a frequency range of either **10Hz** or **5Hz**.

Note: When enabled, this turns off the WDR function, disables Digital Slow Shutter, and reduces Digital Zoom capability.

23.3.3 Setup Menu 2

SETUP MENU 2 is accessed from the MAIN PAGE 1 menu.



23.3.3.1 Flip

Users can track an object continuously as it passes the dome camera by setting FLIP to the IMAGE (digital flip) or M.E. mode (mechanical flip).

Mode

- **IMAGE**

  IMAGE represents digital IMAGE FLIP, which enables users to track objects seamlessly; under this mode, almost no delay occurs when compared to the M.E. mode.

Note: The Privacy Mask function is automatically disabled when the image flip function is enabled. The screen will show *"MASK WILL BE SET OFF."*

- **M.E.**

  M.E. is a standard mechanical operation. As the dome tilts to the maximum angle, it pans 180°, and then continues tilting to keep track of an object.

- **OFF**

  Select this item to disable the flip function.

Note: To make the dome tilt between a specific range, such as -10° to +100° or -10° ~ +190°, use the *ANGLE ADJUSTER* (described below) to set the angle range of tilt. The dome's default tilt setting is 90°.

23.3.3.2 Angle Adjuster

Use this item is to adjust the camera view angle. The range of the view angle varies in different FLIP modes. The range of the view angle ranges from -10° ~ +100° in the M.E. FLIP and FLIP OFF modes, and from -10° ~ +190° in the IMAGE FLIP mode.

23.3.3.3 PT Position

The camera zoom block OSD can display the camera's direction, azimuth, and elevation, on screen. Align the camera to the north and set this position before you activate PT Display.

To set the NORTH direction

1. In the PT Position menu, set PT Display to **ON**.
2. Select **SET PAN ZERO** and press **ENTER**.
3. Using a compass and the direction buttons in the PTZ control panel, pan the camera until it faces straight north.
4. Press **ENTER** to set the NORTH direction.

   After exiting the on-screen menu, the chosen position is indicated on screen as "N 000/##". The measurement after the slash indicates the elevation.

23.3.3.4 Speed by Zoom

When enabled, the pan/tilt speed is adjusted by an internal algorithm when zooming automatically. The larger the zoom ratio, the lower the rotation speed. Speed by Zoom is set to ON by default.

23.3.3.5 Auto Calibration

There is one horizontal and one vertical infrared ray check point in each dome. When the dome camera's position is moved during installation or maintenance, the relative distance between the original set point and the check point may change. When enabled, the Auto Calibration function automatically detects this change and resets the point back to the original position.

23.3.3.6 Password

This function enables the user to protect the on-screen menu with a password.

23.3.3.7 OSD Auto Close

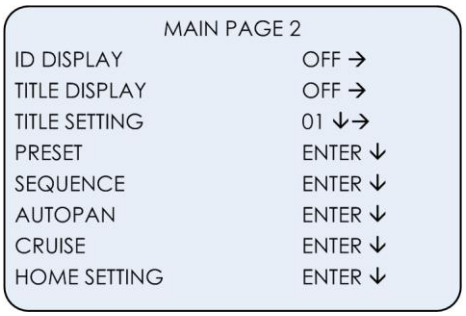
The OSD Auto Close setting is a timeout determining how long the OSM remains visible with no user navigation of the menu options or screens.

23.3.3.8 System Reset

Select this item for remote resetting.

23.3.4 Main Page 2

MAIN PAGE 2 is accessed by pressing the direction key to switch the MAIN PAGE from 1 to 2.



23.3.4.1 ID Display

Users may choose whether the dome ID is displayed on screen to identify the domes. For more information on the Dome ID setting, please refer to the relevant installation manual.

Mode

- **ON**
  Display the ID of the selected dome on the bottom right of the monitor screen (default).
- **OFF**
  Hide the ID of the selected dome.

23.3.4.2 Title Display

Users may name a certain view area and display its title for easy recognition.

Mode

- **ON**

  A title set for a certain view is displayed when the dome is focused on that view area.
- **OFF**

  When the TITLE DISPLAY is *OFF*, no title is displayed on the screen, even titles set in advance.

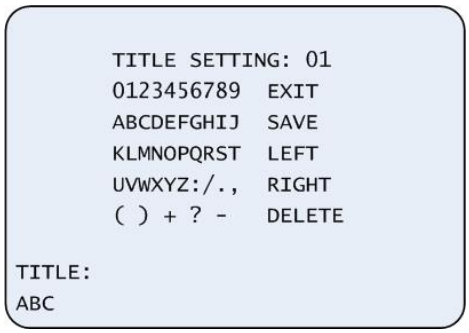
23.3.4.3 Title Setting

Up to 16 zone titles can be set with a maximum of 20 characters for each title. Each view area's title can be named with a privacy mask ID number for future recognition.

Note: For the Siqura HSD621PRH/626 models, the available area for setting a privacy mask is restricted within a tilt angle of 45°.

To set a camera title

1. Operate the dome to a view area for which you want to set a title.
2. Enter the OSM and go to the MAIN PAGE 2 to select **TITLE SETTING**.
3. Using the Next Value/Previous Value keys on the OSM control panel, select a number to represent the view area.
4. Press **ENTER** (on the control panel) to view the editing page.
5. Choose a character with the direction keys and then press **ENTER** to input.
   For example: <A> ENTER, <B> ENTER, <C> ENTER. TITLE: ABC
   To delete input characters, move the cursor LEFT or RIGHT and press **ENTER** to select a character in the entry field. Then move the cursor to DELETE and press **ENTER** to delete the selected character.
6. To save a complete title, move the cursor to SAVE and press **ENTER**.



23.3.4.4 Preset

PRESET SET

The HSD62x series cameras support a total of 256 preset points (that is - 256 minus the presets used for the special commands listed in *Appendix: Hot Key Definitions* (on page 189)).

To set a preset point

1. Go to the Preset Setting menu.
2. Press the LEFT/RIGHT key to select a number (1 represents preset point 1, 2 represents preset point 2, etc.).

3. Press the **ENTER** key, and then rotate the dome camera to the targeted point.
4. Press **ENTER** again to save the defined preset point.

Once you have set a preset point, move the cursor to the next item to run the preset point.

PRESET RUN

Select the preset point that you want to execute. After pressing **ENTER**, the camera will turn to the specified point.

To run other defined preset points, simply move the cursor back to the last item, select the preset point that you want to execute, and move the cursor down to PRESET RUN again.

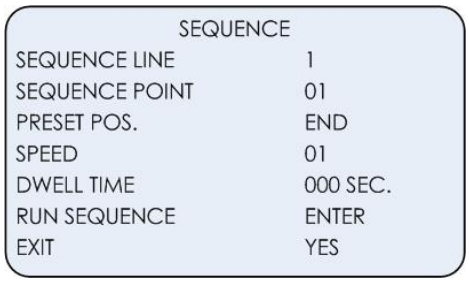
EXIT

Exit the PRESET menu and return to the MAIN PAGE 2 menu.

Note: Users can set preset points through a keyboard. Refer to the control keyboard's quick guide for further information.

23.3.4.5 Sequence

This function executes prepositioning of the pan, tilt, zoom and focus features in a certain sequence for a camera. Before setting this function, users must define at least two preset points.



Parameters

- **SEQUENCE LINE**

  There are eight sets of sequence lines built in the dome camera. Use the left/right direction keys to select a line first and then set its sequence points.

- **SEQUENCE POINT**

  Up to 64 points can be specified for each sequence line. The sequence points represent the order of the preset points that the dome will automatically run. The following setup items, including PRESET POSITION, SPEED, and DWELL TIME, influence how the camera runs through each sequence point.

- **PRESET POSITION**

  Use this item to assign a specific preset position to the selected sequence point.

- **DWELL TIME**

  The DWELL TIME is the duration time the dome remains at a sequence point. The range is from 0 to 127 seconds. The dome will go to the next sequence point when the DWELL TIME expires. If the setting is **0**, the dome will stay at this sequence point until a user manually moves the camera.

- **RUN SEQUENCE**

  Use this item to command the dome camera to run the selected sequence line manually. On indoor dome cameras, press **ENTER** to execute a sequence line.

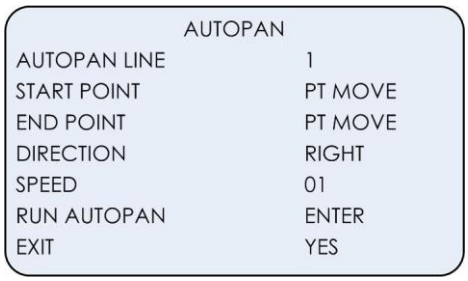
- **EXIT**

  Select this item to exit the SEQUENCE menu and return to MAIN PAGE 2.

Note: Users may execute the sequence function via keyboard. Refer to the control keyboard's quick guide for further information.

23.3.4.6 Autopan

Autopan is the motion of scanning an area horizontally so the dome camera captures a horizontal view. The parameters are as follows.



AUTOPAN LINE

There are four sets of autopan lines built in to a dome camera. Choose a line to execute by using the left/right direction keys. To perform endless panning, set the start point and end point to the same value.

START POINT

To set the start position of the AUTOPAN path

1. Move the cursor to START POINT and press **ENTER** while the item TO FIND, is flashing. The item changes to TO SAVE automatically.
2. Focus the dome on the desired position and press **ENTER** to save the position as the start point.
   The cursor will move to END POINT automatically.
3. Set the end point as described below to complete the auto-pan setting.

Note: The tilt and zoom values of the start point will be recorded and fixed for the selected autopan line.

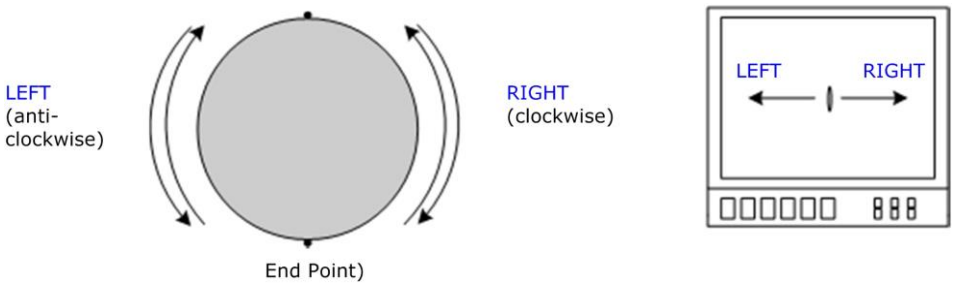
END POINT

To set the end point after the start point is defined

- Pan the dome to another position and press **ENTER** to save the position as the end point.

DIRECTION

Use this item to set the autopan direction of the dome camera. The dome will start to pan clockwise from the start point to the end point if your selection is RIGHT, and then return to the start point. The dome will start to pan counterclockwise from the start point to the end point if your selection is LEFT, as shown below.



SPEED

Use this item to define the dome camera rotation speed while running autopan. The speed is adjustable from 1 to 4 (10 ~ 45 degree/sec.).

RUN AUTOPAN

After you configure all autopan settings, select this item to execute the autopan function. Press **ENTER** to run an autopan path.

EXIT

Exit the AUTOPAN setup menu. Return to MAIN PAGE 2 to set up Cruise.

Note: Users can execute the autopan function via keyboard. Refer to the control keyboard's quick guide for more information.

23.3.4.7 Cruise

Cruise is a route formed with manual operation (through adjusting the pan and tilt position), which can be stored and recalled to execute repeatedly. The Cruise menu is shown below.

CRUISE	
CRUISE LINE	1
RECORD START	ENTER
RECORD END	ENTER
RUN CRUISE	ENTER
EXIT	YES

RECORD START

To record a Cruise path

1. Select a Cruise Line.
   The HSD621PRH/626 models support up to 8 programmable cruises.
2. Rotate the dome camera to a desired view area before entering the OSM.
3. Press **ENTER** to build the cruise path using the joystick on the control device or the arrow keys on the web interface's PTZ control.
   The percentage of the memory buffer is displayed on the screen.
4. Pan, tilt, and zoom the dome camera to describe a path.

Note: Be aware of the memory size when building a cruise path. Once the buffer percentage reaches 100%, recording of the path will stop.

RECORD END

The cursor is moved to RECORD END when building the cruise line; when the setting is completed, press **ENTER** to save the path.

RUN CRUISE

After cruise setting is completed, press **ENTER** to execute the defined Cruise.

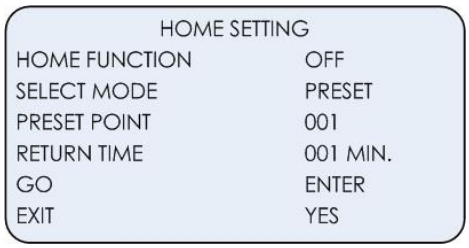
EXIT

Exit the CRUISE setup menu, and return to MAIN PAGE 2 to configure home settings.

Note: Users can execute the cruise function via keyboard. Refer to the control keyboard's quick guide for more information.

23.3.4.8 Home Setting

Users are able to set an operation mode to ensure constant monitoring; if the dome idles for a period of time, the preset function is activated automatically. The HOME function allows constant and accurate monitoring to avoid the dome stopping or missing events.



HOME FUNCTION

Use this menu item to enable or disable the HOME function. Use the left/right direction keys to change the setting.

SELECT MODE

Select one of the modes that the dome should execute when the HOME function is enabled and the RETURN TIME has elapsed. The options include AUTO PAN, SEQUENCE, CRUISE, and PRESET. Use the left/right direction keys to change the setting. The items listed below will change to reflect your selection.

- **PRESET POINT**

  Select a preset point where the dome should go after the return time function described below is activated.

- **SEQUENCE LINE**

  Select a sequence line that the dome camera should implement after the return time function is activated.

- **AUTOPAN LINE**

  Select an auto-pan line that the dome camera should execute after the Return Time function is activated.

- **CRUISE LINE**

  Select a cruise line that the dome camera should execute after the Return Time function is activated.

Note: Set the desired mode through the appropriate menu prior to configuring the home setting.

RETURN TIME

When the dome idles, it starts to count down the time specified in the RETURN TIME setting. Once the return time has elapsed, the dome will execute the action set for the SELECT MODE function. The RETURN TIME ranges from 1 ~ 128 minutes.

GO

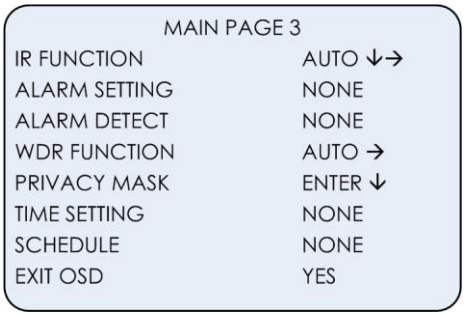
If HOME function is enabled, users may execute the HOME function manually by selecting this item.

EXIT

Exit the HOME SETTING menu. Go to the MAIN PAGE 3 menu to configure other setups.

23.3.5 Main Page 3

MAIN PAGE 3 is accessed by pressing the direction key to switch the MAIN PAGE from 2 to 3.



23.3.5.1 IR Function

With the IR cut filter, the dome can still catch clear images at night or in low-light conditions. In daylight, the IR cut filter blocks infrared light for clear images; at night, the IR cut filter is removed to utilise infrared light and the displayed images will be in black and white.

In the Siqura HSD621PRH/626 models, users are able to view colour images when the IR function is activated. Refer to the description below to operate the IR function.

Siqura HSD620/620PRH/622

AUTO

The internal circuit automatically decides when to remove the IR cut filter according to the value of light conditions calculated by the internal light algorithm.

MANUAL

- **ON**

  Select the item to remove the IR cut filter.
- **OFF**

  Select the item to disable the IR function.

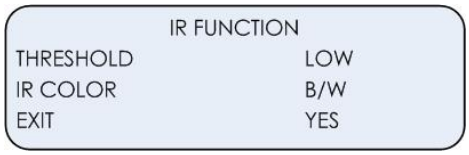
Siqura HSD621PRH/626/626EXP

AUTO

The Internal circuit will automatically decide the occasion to remove the IR cut filter according to the image brightness level.

ON

Select this item to remove the IR cut filter.



THRESHOLD

The dome removes the filter immediately when the threshold value is reached. The threshold options are LOW, MID, and HI. A LOW threshold indicates a higher sensitivity and can improve lens reliability.

IR COLOUR

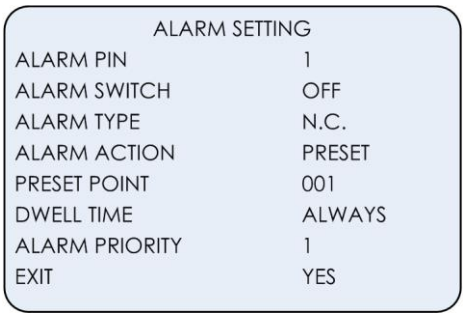
When the IR function is enabled, the video output can be programmed as colour or black and white.

EXIT

Exit the IR FUNCTION menu and return to MAIN PAGE 3 to configure alarm detection.

23.3.5.2 Alarm Setting

The HSD62x provides eight alarm inputs and one alarm output (N.O. or N.C) to connect alarm devices. These can be used as PTZ auxiliaries (they cannot be used as contact closures).



ALARM PIN

Select an alarm connector for which you want to set alarm-related parameters, and then set the parameters in the Alarm Setting menu.

Note: If two or more alarm pins are triggered at the same time, the smaller alarm pin number will have higher priority of being handled. For example, if Alarm-1 and Alarm-3 are triggered simultaneously, only Alarm-1 will actually be handled.

ALARM SWITCH

The item is used to enable or disable the selected alarm pin function. Use the left/right direction keys on the control keyboard to change the setting.

ALARM TYPE

There are two kinds of alarm types: Normal Open and Normal Close. Select an alarm type that corresponds with the alarm application.

ALARM ACTION

The alarm actions include PRESET, SEQUENCE, AUTOPAN, and CRUISE functions. Select one of these modes so that A certain action will be executed when an alarm is triggered. Use the right direction key of the control keyboard to select a particular action mode, and the items listed below will change in accordance with your selected alarm action. Additionally, when an alarm is triggered, a warning notice: ALARM will flash in the upper right corner of the screen.

Note: When an alarm condition (dwell time setting: 1~127 seconds/ ALWAYS) is released, the HSD62x will go back to the previous status before the alarm was triggered.

PRESET POINT

Select a preset point where the dome camera should go when an alarm pin is triggered. The preset point(s) should be set prior either in the PRESET setup menu or through the keyboard.

SEQUENCE LINE

Select a sequence line that the dome camera should execute when an alarm pin is triggered. The sequence line(s) should be defined prior either in the SEQUENCE setup menu or through the keyboard.

AUTOPAN LINE

Select an autopan line that the dome camera should execute when an alarm pin is triggered. The autopan line(s) should be defined prior either in the AUTOPAN setup menu or through the keyboard.

CRUISE LINE

Select a cruise line that the dome camera should execute when an alarm pin is triggered. The cruise line(s) should be defined prior either in the CRUISE setup menu or through the keyboard.

DWELL TIME

The DWELL TIME is THE duration of executing an alarm action. If the PRESET mode is selected, the dome camera will go to the selected preset position and stay there for a user-defined period of time (1~127seconds/Always) when an alarm takes place until the alarm condition is released or users rotate the joystick to change the status of the dome camera.

If other modes (SEQUENCE/AUTOPAN/CRUISE) have been selected, the camera will keep executing the selected mode (DWELL TIME: ALWAYS) until the alarm condition is released or users rotate the joystick to change the status of the dome camera.

Note: The dwell time is only adjustable when selecting Preset as the alarm action. When the dwell time is up, the dome camera will go back to its trigger position and recheck the alarm pin status.

ALARM PRIORITY

Set alarm priority from <1> to <8> for each alarm pin. If two or more alarms are triggered at the same time, THE smaller alarm priority number will have the higher priority of being handled. The default alarm priority is <1>.

EXIT

Exit the ALARM SETTING menu. Go to the MAIN PAGE 3 menu to configure other setups.

23.3.5.3 Alarm Detect

This is not enabled.

23.3.5.4 WDR Function

The wide dynamic range (WDR) function is especially effective in solving indoor and outdoor contrast issues to enhance image quality and video display. It enables the dome to catch detailed data from the dark part of an image without any saturation from the brighter parts.

Note: The backlight compensation function is turned off automatically when the WDR function is enabled.

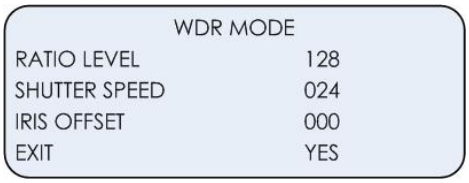
MODES

- **AUTO**

  In this mode, the dome camera operates the WDR function automatically.

- **ON**

  When enabled, users can define three parameters: RATIO LEVEL (000 ~ 128), SHUTTER SPEED (000 ~ 128) and IRIS OFFSET (000 ~ 128), as shown below.



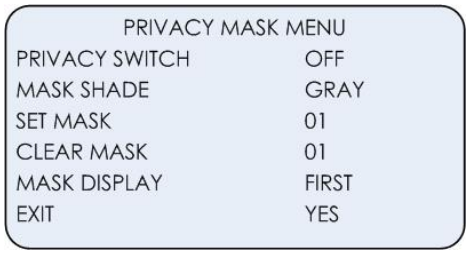
23.3.5.5 Privacy Mask

The Privacy Mask function aims to avoid any intrusive monitoring. Users can adjust the camera view position using the joystick or web interface PTZ controls, and adjust the mask size and area via the direction keys. The dome camera memorises the center of the selected view as an original point and locks the lens in place as users enter the SET MASK menu, as described below.

As a starting point, so that you will see a mask, a privacy mask has a default size of 10x10 when initially turned on.

Note: The Image Flip function (for all models) and the Image Inverse function (for Siqura HSD621PRH/626/626EXP) are disabled automatically when the Privacy Mask function is enabled.

Siqura HSD620/620PRH/622



PRIVACY SWITCH

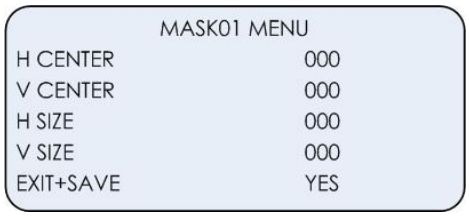
Use this item to enable or disable the masking function. Set this item to **ON** before configuring mask zones.

MASK SHADE

The colour of a privacy mask can be selected with this item. Available colons are black, grey, and white.

SET MASK

After pressing **ENTER** to open the sub-menu of SET MASK, the dome memorises the present position as a privacy mask position. Up to 24 masks can be set. These models restrict the mask zones from being set too close to each other.



- **H CENTER (000~255)**

  The original center of a mask zone is the center of a screen. To move the center of the mask zone to another position, adjust this value using the LEFT/RIGHT keys.
- **V CENTER (000~255)**

  The original center of mask zone is the center of screen. To move the center of the mask zone to another position, adjust this value using the LEFT/RIGHT keys.
- **H SIZE (000~127)**

  Users can adjust the horizontal size of a privacy mask through this item. Set the H and V size to 0 to delete the selected mask.
- **V SIZE (000~127)**

  Users can adjust the vertical size of a privacy mask through this item. Set the H and V size to 0 to delete the selected mask.

Note: A mask's size should be limited within the screen, no matter the value to which the optical zoom is set.

CLEAR MASK

To delete a preset mask zone

1. Select the mask zone that will be erased (e.g., 01).
2. Press **ENTER** to confirm the selection.
   The screen will display the instructions to reset after the mask is cleared.
3. Select **RESET** under the CLEAR MASK item and press **ENTER** to proceed.

MASK DISPLAY

This item is used to set the time to display a privacy mask.

- **FIRST**
  When selected, the camera detects the mask zone at the next preset position and displays the mask in advance, and then pans the dome to the preset point.
- **LAST**
  When selected, the camera moves to the preset point first, and then displays the mask zone.

EXIT

Exit the PRIVACY MASK menu and go back to MAIN PAGE 3 to configure time-related settings.

Siqura HSD621PRH/626/626EXP

PRIVACY MASK MENU	
PRIVACY SWITCH	OFF
MASK SHADE	WHITE
ZOOM FACTOR	OFF
SET MASK	01
CLEAR MASK	01
MASK DISPLAY	FIRST
EXIT	YES

PRIVACY SWITCH

Use this item to enable or disable the Privacy Mask function. Set this item to ON before configuring mask zones.

MASK SHADE

The colour of a privacy mask can be selected with this item. Available colons are black, grey, and white, as well as three mosaics.

ZOOM FACTOR

This function enables you to set the zoom level at which the masks are activated. Select **SET ZOOM LIMIT**, zoom the camera to the desired level, and then press **ENTER** to save the setting.

SET MASK

Use the control device to move the dome camera to the area where you want to set a mask. Press **ENTER** to enter the SET MASK menu. The dome will memorise the present position as a privacy mask position. Up to 8 masks can be set in the HSD621PRH/626 cameras.

Note: For the Siqura HSD621PRH/626 model, the available area for setting a privacy mask is restricted within a tilt angle of 45°, and two mask zones may be set in a view area.

CLEAR MASK

To delete a preset mask zone

1. Select the mask zone that will be erased (e.g., 01).
2. Press **ENTER** to confirm the selection.
   The screen will display the instructions to reset after the mask is cleared.
3. Select **RESET** under the CLEAR MASK item and press **ENTER** to proceed.

MASK DISPLAY

This item is used to set the time to display a privacy mask.

- **FIRST**
  When selected, the camera detects the mask zone at the next preset position and displays the mask in advance, and then pans the dome to the preset point.
- **LAST**
  When selected, the camera moves to the preset point first, and then displays the mask zone.

EXIT

Exit the PRIVACY MASK menu and return to MAIN PAGE 3 to configure time-related settings.

23.3.5.6 Time Setting

This is not enabled.

23.3.5.7 Schedule

This is not enabled.

23.3.5.8 Exit

To exit the OSM, users can either select this item at the bottom of MAIN PAGE 3 or press the ESC key on a control keyboard.

Appendix: Hot Key Definitions

The following table offers a list of preset commands that give you direct control over HSD62x imaging functions using an external PTZ controller or the PTZ control panel in the web interface.

Protocol ID=1, 2, 26, 29.

Function	Command(Byte 3 ~ 6)	Hot key	Note
Enter OSD Menu/OSD Enter	0x00,0x07,0x00,0x4D	go preset 77	N/A
	0x00,0x07,0x00,0x5F	go preset 95	N/A
	0x00,0x03,0x00,0x5F	set preset 95	The same with Pelco
OSD Enter	0x02,0x00,0x00,0x00	Iris open (if OSD menu is on)	The same with Pelco
OSD ESC(previous page)	0x04,0x00,0x00,0x00	Iris close (if OSD menu is on)	The same with Pelco
EXIT OSD	0x00,0x20,0x00,0x00	Zoom tele (if OSD menu is on)	The same with Pelco
EXIT OSD	0x00,0x40,0x00,0x00	Zoom wide (if OSD menu is on)	The same with Pelco
Run Sequence #1	0x00,0x07,0x00,0x46	go preset 70	N/A
Run Sequence #2	0x00,0x07,0x00,0x47	go preset 71	N/A
Run Sequence #3	0x00,0x07,0x00,0x48	go preset 72	N/A
Run Sequence #4	0x00,0x07,0x00,0x49	go preset 73	N/A
Run Sequence #5	0x00,0x07,0x00,0x4A	go preset 74	N/A
Run Sequence #6	0x00,0x07,0x00,0x4B	go preset 75	N/A
Run Sequence #7	0x00,0x07,0x00,0x4C	go preset 76	N/A
Run Sequence #8	0x00,0x07,0x00,0x4E	go preset 78	N/A
Run Autopan #1	0x00,0x07,0x00,0x4F	go preset 79	N/A
Run Autopan #2	0x00,0x07,0x00,0x50	go preset 80	N/A
Run Autopan #3	0x00,0x07,0x00,0x51	go preset 81	N/A
Run Autopan #4	0x00,0x07,0x00,0x52	go preset 82	N/A
Reset	0x00,0x07,0x00,0x53	go preset 83	N/A
	0x00,0x0F,0x00,0x00	N/A	Reset Command, The same with Pelco
Alarm Out Enable	0x00,0x03,0x00,0x60	set preset 96	N/A
Alarm Out Disable	0x00,0x07,0x00,0x60	go preset 96	N/A
Set Cruise Start	0x00,0x1F,0x00,0x01	Cruise Button	The same with Pelco
Set Cruise End	0x00,0x21,0x00,0x01		
Run Cruise	0x00,0x23,0x00,0x01		

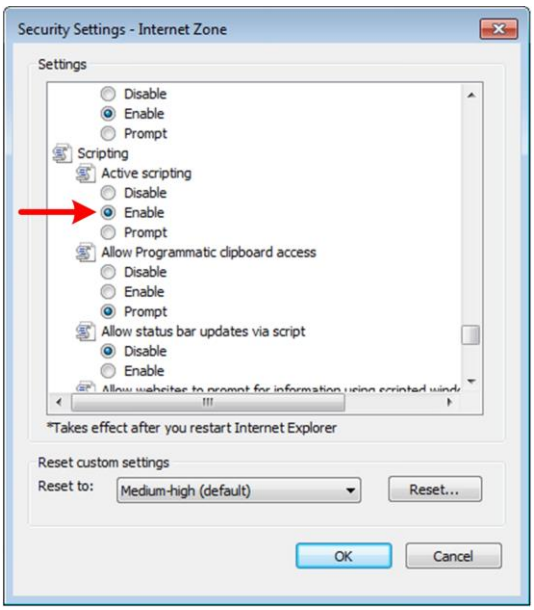
Function	Command(Byte 3 ~ 6)	Hot key	Note
Flip - Pan turn 180 °		go preset 33	
GoHome		go preset 34	
Backlight On		go preset 246	
Backlight Off		go preset 247	
Unit Information Screen(10 s)		go preset 248	Displays model number and camera firmware revision
ICR Auto		go preset 249	
ICR On		go preset 250	
ICR Off		go preset 251	
WDR Auto		go preset 252	
WDR Off		go preset 253	
EIS On		go preset 254	EIS supported by: ▸ HSD621PRH ▸ HSD626 ▸ HSD626EXP
EIS Off		go preset 255	

Appendix: Enable JavaScript

To have the HSD62x webpages displayed correctly, JavaScript must be enabled in your web browser.

To enable JavaScript in Internet Explorer

1. On the *Tools* menu, click **Internet Options**.
2. On the *Security* tab, click the Internet globe icon, and then click **Custom level**.
3. On the *Settings* list, search for *Active scripting*, and then click **Enable**.
4. Click **OK**, and then close *Internet Options*.



Active scripting enabled

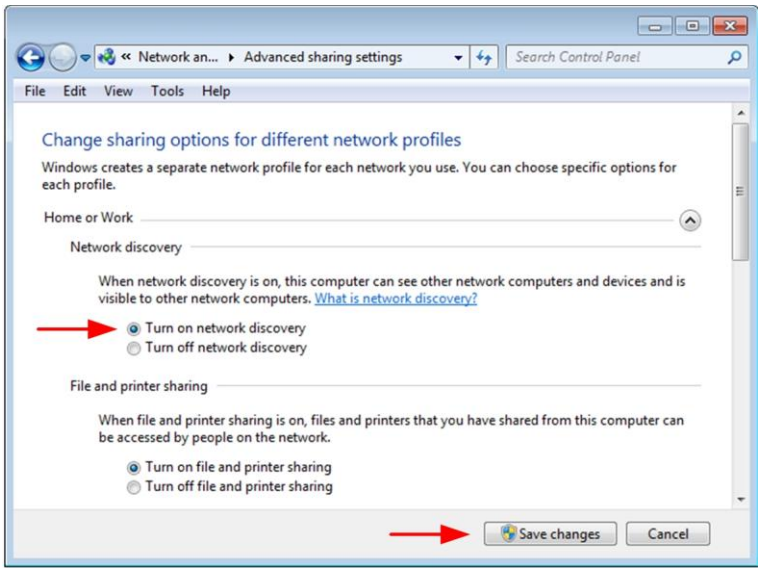
Appendix: Enable UPnP in Windows 7

With UPnP enabled in Windows, it is possible to see Siqura devices in Windows Explorer. You can double-click a device to open its webpages.

To enable UPnP in Windows 7

1. In *Control Panel*, click **Network and Sharing Center**.
2. In the left pane, click **Change advanced sharing settings**.
3. Under the relevant network profile, click **Turn on network discovery**.
4. Click **Save changes**

   UPnP will now automatically start when you turn on your computer.



Enable network discovery

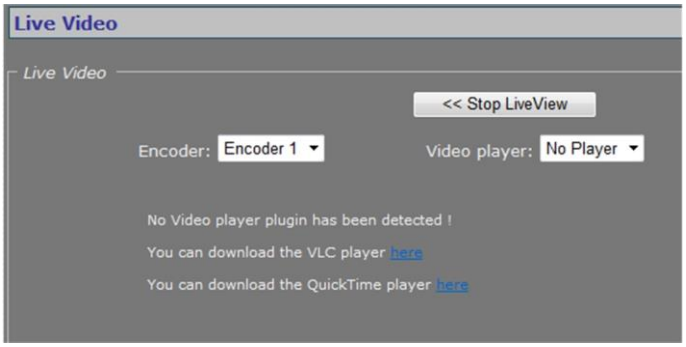
Appendix: Install a video player

Viewing video streams on the webpages of the HSD62x requires a video player installation on the machine running the web browser. This appendix provides instructions for installing QuickTime and VLC, the video plug-ins supported by the HSD62x.

In This Chapter

Download video player software

The HSD62x supports QuickTime and VLC. If neither is detected when you attempt to open a video stream in the webpages, the Video player list indicates "No Player". You can use the hyperlinks on the webpage (see below) to download the required software.



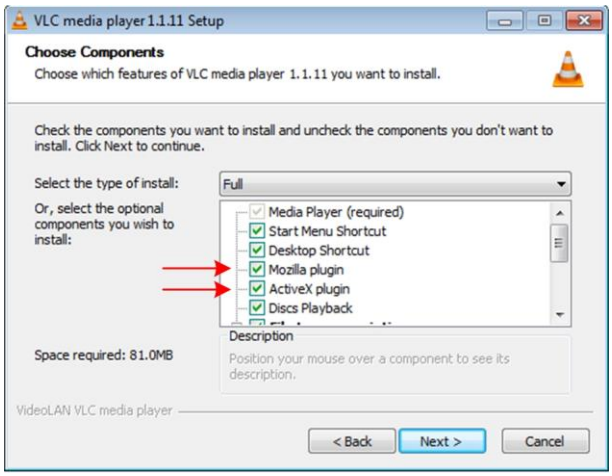
Live Video page with video player download links

Install QuickTime

QuickTime installation is straightforward and self-explanatory.

Install VLC

VLC installation requires special attention. When installing this software, make sure you select the Mozilla plug-in and ActiveX plug-in components in the VLC Setup wizard.



Required components: Mozilla and ActiveX plug-ins

Note: The support of VLC, an open source community, may differ between releases. The HSD62x has been successfully tested with VLC v2.1.0.

VLC and Windows 7

To configure VLC media player settings when running this plug-in on a Windows 7 PC.

1. Open the VLC media player.
2. On the *Tools* menu, click **Preferences**.
3. In the *Show settings* section (lower left corner), click **All**.
4. Expand the **Video** list, and then click **Output Modules**.
5. In the *Video output module* list, click either DirectX video output, OpenGL video output, or Windows GDI video output.
6. Expand **Output Modules**, and then click **DirectX**.
7. Clear the **Use hardware YUV > RGB conversions** check box.
8. Click **Save**.

Appendix: NTCIP Configuration

The National Transportation Communications for ITS Protocol (NTCIP) provides a communications standard that ensures the interoperability and interchangeability of traffic control and Intelligent Transportation Systems (ITS) devices. This appendix provides information about the conformance groups which are supported by the HSD62x.

In This Chapter

Supported conformance groups

The HSD62x firmware supports all the mandatory parts and some of the optional parts (see table below) of the NTCIP CCTV specification as laid down in the NTCIP 1205:2001 v01.08 document. This means that - in terms of section 4 of this document - the following conformance groups are supported.

Conformance group	Reference	Conformance requirement
Configuration	NTCIP 1201:1996	mandatory
CCTV Configuration	NTCIP 1205	mandatory
Motion Control	NTCIP 1205	optional

Conformance statement table

Configuration

Most of the Configuration conformance group objects listed below contain static device information.

- Global Set ID parameter
- Maximum modules parameter
- Module table
- Module number
- Module device node
- Module make
- Module model
- Model version
- Module type
- Base standards parameter

CCTV configuration

The CCTV Configuration conformance group consist of objects that specify the configuration parameters of a CCTV. For details, refer to NTCIP 1205. Conformance requirement within the group is mandatory.

- rangeMaximumPreset
- rangePanLeftLimit
- rangePanRightLimit
- rangePanHomePosition
- trueNorthOffset
- rangeTiltUpLimit
- rangeTiltDownLimit
- rangeZoomLimit
- rangeFocusLimit
- rangeIrisLimit
- rangeMinimumPanStepAngle
- rangeMinimumTiltStepAngle
- timeoutPan
- timeoutTilt
- timeoutZoom
- timeoutFocus
- timeoutIris
- labelTable
  - labelEntry
  - labelIndex
  - labelText
  - labelFontType
  - labelHeight
  - labelColor
  - labelStartRow
  - labelStartColumn
  - labelStatus
  - labelLocationLabel
  - labelEnableTextDisplay

Motion control

The Motion Control group defines the variables that provide PTZ control. For details, refer to NTCIP 1205. Conformance requirement within the group is mandatory.

- presetGotoPosition
- presetStorePosition
- positionPan
- positionTilt
- positionZoomLens
- positionFocusLens
- positionIrisLens

Note: Camera control through NTCIP on Siqura multichannel products is limited to video channel 1.

SNMP MIB

NTCIP has its own SNMP MIB. This database is used to store information, which is used to control cameras and other devices in the transportation management system. An electronic version of the MIB is available from a NEMA FTP site. To get access to the FTP site, send your name, organisation name, and email address to ntcip@nema.org, and request access.