



KIARA/MIRA 2000/5000

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User Manual



DISCLAIMER	3
CONTACTS	3
SCOPE OF THIS MANUAL.....	4
VIDEO CAMERA CONNECTION.....	5
SYSTEM REQUIREMENTS	5
CONNECTING TO THE VIDEO CAMERA	5
HARDWARE RESET	5
HOME PAGE	7
SETUP MENU.....	9
BASIC SETTINGS.....	10
<i>information</i>	10
<i>image</i>	11
<i>video</i>	17
<i>audio</i>	22
<i>network</i>	23
<i>date & time</i>	25
<i>account</i>	27
ADVANCED SETTINGS	29
<i>archive</i>	29
<i>recording server</i>	30
<i>recordings</i>	34
<i>motion detection</i>	39
<i>audio detection</i>	41
<i>schedules</i>	42
<i>digital I/O</i>	43
<i>advanced network</i>	44
<i>security</i>	46
<i>maintenance</i>	47
<i>system log</i>	48



Disclaimer

This manual was written and published with reference to the most recent description and specifications of the product. The contents of this document, and the specifications discussed within it, are subject to change without notice.

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SCOPE OF THIS MANUAL

This manual applies to firmware version T12(xxx) and following video camera models:

- Bullet
 - SR-C-S2-KIARA-V12-IR
 - SR-C-S2-KIARA-V22-IR
 - SR-C-S5-KIARA-V10-IR
- Dome
 - SR-C-S2-MIRA-V12-IR
 - SR-C-S2-MIRA-V22-IR
 - SR-C-S5-MIRA-V10-IR

It assumes the use of the SR-O-UNICA mounting bracket.

Where there are differences between the various types of cameras, these will be explicitly noted in the text. For the sake of simplicity, the manual takes as its reference the video camera model SR-C-S2-KIARA-V12-IR.



VIDEO CAMERA CONNECTION

This manual describes the procedure for configuring the KIARA and MIRA 2000 and 5000 IP video camera using a web browser.

The Spark IP cameras can be controlled and configured using Microsoft Internet Explorer (IE), Google Chrome, Firefox or Microsoft Edge web browsers.

System requirements

The table below sets out the minimum recommended specifications:

<i>CPU</i>	Intel Core i5 CPU @ 2.0GHz or higher
<i>RAM</i>	2GB RAM or higher
<i>Operating system</i>	Windows 7 or higher
<i>Web browser</i>	One of the supported ones

Connecting to the video camera

To be able to access the video camera from a web browser, the camera must have a valid IP address within the network and be on the same subnet as the computer.

- Start the web browser.
- Type the IP address of the video camera into the address bar and press Enter.



The default IP address of the video camera is **192.168.1.219**

- Enter the username and password into the fields.



The default credentials are username **admin**, password **admin**

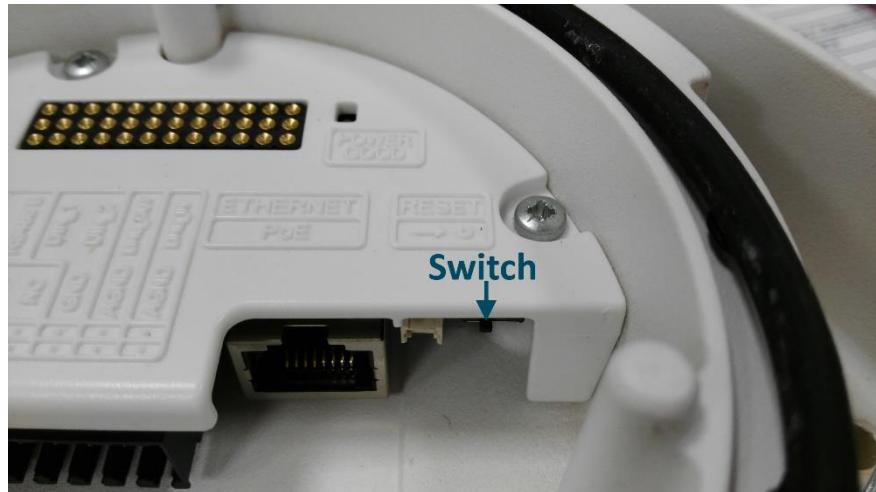
- Click **OK**: if the credentials entered are correct, the web interface of the video camera will display on the screen.

Hardware reset

To connect the video camera the IP address and access credentials must be known. In case the required information isn't unavailable, it will be impossible to make a connection.

The problem can be solved by resetting all configuration parameters, to factory defaults.

Execute the reset procedure by following these steps:

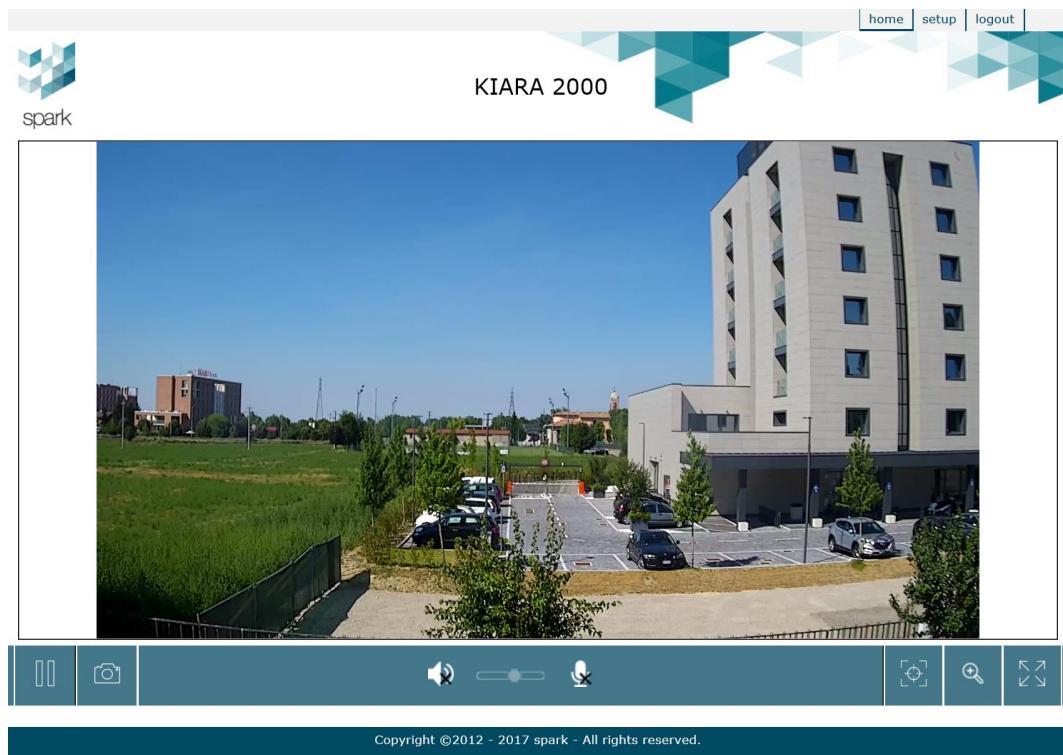


1. Unplug the video camera from SR-O-UNICA bracket, locate the reset switch and put it in RESET position.
2. Plug the video camera to SR-O-UNICA bracket and wait for about 20 seconds, until the frontal blue led starts to flicker.
3. Unplug the video camera from SR-O-UNICA and put the reset switch back in RUN position.
4. Plug the video camera to SR-O-UNICA bracket and connect the device using the default parameters.



HOME PAGE

After the connection is established, the Home page displays on the screen. It contains the real time video feed and a set of quick-access buttons for the main functions of the camera. Depending on configuration, some text may be overlaid on the video images.



Placing the cursor on any point of the video image, you can zoom in or out using the mouse scroll wheel (digital zoom function).

The following table describes the toolbar buttons.

home	Live video	Opens the home page, containing the live video view.
setup	Configuration	Opens the setup menu, where you can configure all the available parameters.
logout	Logout	Logs out the user.
	Pause/Play	Pauses or resumes the live video stream.
	Snapshot	Takes a snapshot of the video. Clicking this icon opens a window containing the captured image. You can then save the image and close the window.



		<p>In Internet Explorer, to be able to save an image you must disable protected mode:</p> <p> - from the toolbar, select Internet Options - in the window that opens, select the Security tab. - deselect the Enable protected mode check box. - click OK to confirm - exit and restart the browser</p>
	Sound	Enable/Mute the sound received from the video camera
	Microphone	Enable/Mute the audio sent to the video camera
	Volume	Drag the cursor to adjust the volume
	Refocus	Adjust the focus of the video camera
	Zoom	The zoom lets you enlarge specified regions within the video image. Click the icon to open a window where you can position the zoom lens inside the image. Then adjust the zoom level by dragging the cursor between "T" (tele-zoom) and "W" (wide-angle): moving towards "T" enlarges the image and displays details in a larger size. A normal consequence of using the zoom is a reduction in image quality. Click  to close the window.
	Full screen	Display the video feed in a full-screen view. In this mode, the video image is expanded to fill the screen and the toolbar icons are hidden. To exit full screen mode, press ESC on the keyboard or double-click anywhere on the screen with the left mouse button.



SETUP MENU

The setup menu lets you configure various parameters that influence the functioning of the video camera.



Each setup screen includes Save and Undo buttons: click to save the changes made, or click to discard the changes and restore the previously saved configuration.



Basic settings

information

The information tab provides an overview of the video camera's characteristics and its current configuration.

Product Name	KIARA 2000 Bullet Camera
Firmware Version	0603T11003
Firmware Date	Sat Jun 3 07:31:26 UTC 2017
Onvif Version	2.40
MAC Address	20:E4:07:00:04:88
Date Time	2017-07-24 09:01:39
Bandwidth Usage	Receiving = 48 kbps transmitting = 18kbps
WLAN Bandwidth Usage	None
Fan State	OFF
Temperature	34°C / 93°F
Connections	0
Account	1
Anonymous Viewer	Disabled
HTTPS	Disabled
IP Address Filter	Disabled
Mirror/Flip: None, Image Rotated: None, Video Clip Format: Profile1,	
IR Cut Filter Mode:Auto, IR Cut Filter Switch Delay:10s, IR Cut Filter Threshold:10-20,	



image

This section contains various parameters you can adjust to improve image quality, depending on the video camera model and the environment where it is installed.

image

The screenshot shows the KIARA 2000/5000 web interface. At the top, there is a navigation bar with links for 'home', 'setup', and 'logout'. Below the navigation bar, the camera model 'KIARA 2000' is displayed. The main menu on the left includes 'information', 'Image' (which is selected and highlighted in blue), 'video', 'audio', 'network', 'date & time', 'accounts', and 'ADVANCED'. The central area features a live video feed of a modern building complex under a clear blue sky. Below the video feed, there are several configuration sections:

- settings**: Brightness (50), Saturation (50), Contrast (50), Sharpness (50), and a 'Default' button.
- AWB**: Target Color Tone (Cool to Warm), Auto White Balance (Auto), and a dropdown menu.
- exposure**: Powerline Frequency (Auto), Target Illuminance (Dark to Bright, set to 20), Exposure Time (1/10000 to 1/15), Gain (1 to 32), and Low Light Behavior (On or Off).

At the bottom right of the interface, there are 'save' and 'undo' buttons. A copyright notice at the bottom states: "Copyright ©2012 - 2017 spark - All rights reserved."

The parameters are explained in the table below.



Settings	Brightness, Saturation Contrast, Sharpness	These are the basic parameters for adjusting the video image. Default value is 50.
AWB	White balance	The white balance is a reference that tells the video camera what the color white looks like. This enables the video camera to continue displaying all colors correctly, even when the color temperature of the scene changes, for example when going from daylight to artificial light. Target Color Tone: adjust the cursor between Warm and Cool to obtain an image that most closely corresponds to natural lighting. Auto White Balance: this parameter sets how the video camera interprets colors. The available settings are <i>Auto</i> , <i>Hold Current</i> , <i>Fluorescent</i> , <i>Incandescent</i> , <i>Sunny</i> , <i>Cloudy</i> , <i>Sun Shade</i> , <i>Manual</i> . Choose the value that best matches the environment where the video camera is installed. The default setting <i>Auto</i> generally provides good results.
exposure	Powerline frequency	The available settings are <i>Auto</i> , <i>50Hz</i> , <i>60Hz</i> and <i>Hold Current</i> . If the video camera is installed outdoors, select <i>Auto</i> . If the video camera is installed indoors, select the power line frequency of your location (50Hz or 60Hz).
	Target Illuminance	The exposure can be manually adjusted by sliding the cursor between zero (Dark) and 100 (Bright). The default value of 20 generally provides good results.
	Target Illuminance, Exposure Time	Target Illuminance sets the overall brightness of the video images by adjusting the exposure time. Slide the cursor between 0 (Dark) and 100 (Bright). The default value of 20 provides good results for daylight images, and 15 for night images. Exposure Time sets the minimum and maximum shutter-opening durations. Low exposure times provide a more fluid view of moving objects. High exposure times ensure sharp images even in low light conditions.
	Gain	Gain facilitates image capture in low light conditions, but at the cost of an increase in noise. You can set a minimum and a maximum value for gain.
	Low Light Behavior	Enable this function to define specific exposure parameters for video capture in low light conditions.

To restore the predefined settings, click Default.



enhancements

This section contains some advanced image adjustment parameters.

The screenshot shows the KIARA 2000 software interface. The top navigation bar includes links for home, setup, and logout. The main menu on the left has sections for Information, Image (which is selected and highlighted in blue), video, audio, network, date & time, accounts, and ADVANCED. The central area displays a live video feed of a modern building complex. Below the video feed are three parameter settings:

- WDR**: Mode dropdown set to Off.
- denoise**: 2D Denoise dropdown set to Auto, 3D Denoise dropdown set to Auto.
- defog**: Mode dropdown set to Off.

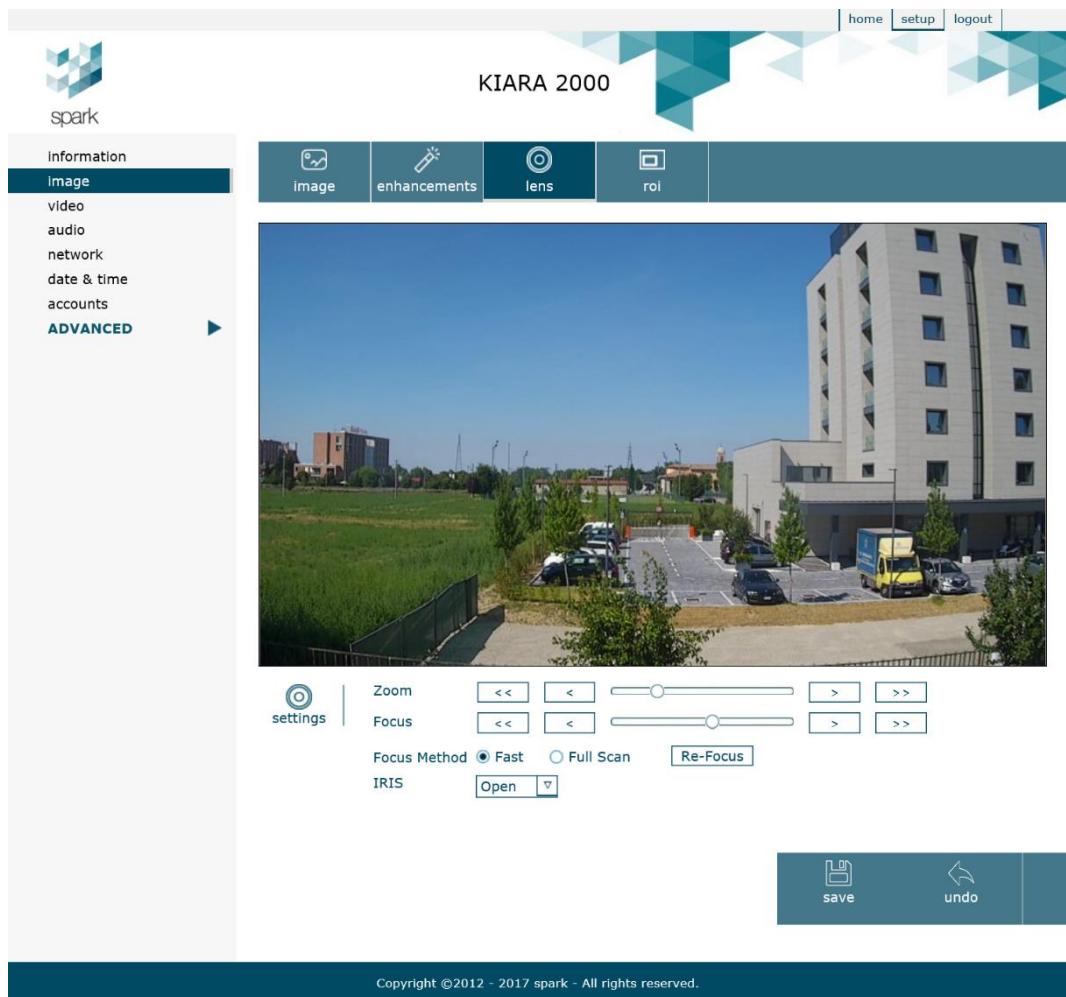
A toolbar at the bottom right includes a save icon and an undo icon.

The parameters are explained in the table below.

WDR	Mode	The Wide Dynamic Range function makes it possible to properly capture the details of objects in extremely bright or shaded areas of high-contrast scenes. Available settings: <i>Auto, Manual, Off</i> .
denoise	2D Denoise 3D Denoise	The denoise function removes distortion from the video signal to improve overall image quality. Noise may be introduced when operating in low light conditions, or at high temperatures. 2D Denoise : spatial noise reduction, accomplished by analyzing video frames individually. Available settings: <i>Auto, Manual, Off, Schedule, Night Mode</i> . 3D Denoise : spatial and temporal noise reduction, based on analyzing sequences of frames. Available settings: <i>Auto, Off</i> .
defog	Mode	Defog is a function that increases the contrast to provide a clearer image when the environment is particularly foggy. Available settings: <i>Auto and Off</i> .



lens



The parameters are explained in the table below.

settings	Zoom, Focus	<p>Zoom lets you adjust the optical zoom by moving the cursor or using the arrow buttons. Focus lets you adjust the focus by moving the cursor or using the arrow buttons.</p>
	Focus Method	<p>Select the method to use for putting the image into focus. Fast: analyzes a limited set of focus points. Full scan: analyzes the full set of focus points. After selecting the desired method, click Re-Focus to put the image into focus.</p>
	IRIS	<p>IRIS adjusts the shutter aperture based on the ambient light conditions. Available settings: <i>Open, Manual, Auto</i>.</p>



roi

This function lets you improve the video quality in specified regions of the image while at the same time limiting the bandwidth outside of them. If you draw a ROI (region of interest) -- for example on a stretch of road, an entrance, or a gate -- the transmitted video will be of higher quality within the ROI, and of lower quality and frame rate elsewhere.

The screenshot shows the KIARA 2000 software interface. At the top, there is a navigation bar with icons for home, setup, and logout. Below the navigation bar, the text "KIARA 2000" is displayed. On the left, a sidebar menu includes "Information", "Image" (which is selected), "video", "audio", "network", "date & time", "accounts", and "ADVANCED". The main area shows a live video feed of a building and parking lot. A red rectangular ROI is drawn over the parking area. Below the video feed, there is a configuration panel for the ROI. It includes a "roi" icon, a "Display All Range" checkbox, and a "Profile" dropdown set to "Profile1". There are also fields for "Name" (set to "ROI"), "Background frame rate" (set to "1 fps"), and a note about ROI support for H264/H265. At the bottom of the configuration panel are "Add" and "Remove" buttons. To the right of the configuration panel is a "List of roi" section containing a single item "ROI". At the bottom right of the interface are "save" and "undo" buttons. A copyright notice "Copyright ©2012 - 2017 spark - All rights reserved." is located at the very bottom.

The parameters are explained in the table below.

roi	Display All Range	Select this check box to display all the different ROIs associated with the current profile.
	Profile	Select a profile from the drop-down list to manage the ROIs associated with that profile.
	Name	Name assigned to the ROI
	Background frame rate	Sets the frame rate for the image areas outside the ROI, to optimize bandwidth consumption.

To create a new ROI click **Add**. The ROI name must be already defined.

To delete an ROI click **Remove**.



 Each profile can be associated with a maximum of three ROIs.

 Use of the ROIs is supported with H.264 and H.265 video compression.



video

This section contains the parameters for configuring video playback.

video

The screenshot shows the video configuration interface for KIARA 5000. The left sidebar has a 'video' tab selected. The main area has three tabs: 'video', 'profile', and 'day & night'. Under 'video', there are sections for 'rotation', 'streams', and 'overlay'. The 'streams' section has dropdowns for 'Video Clip Format', 'Snapshot Format', and 'Capture Mode'. The 'Capture Mode' dropdown is highlighted with a yellow circle and set to '2560x1920@30 (4:3)'. At the bottom right are 'save' and 'undo' buttons.

The parameters are explained in the table below.

rotation	Mirror/Flip, Image Rotated	Mirror/Flip reflects the image and/or flips it upside down. Available settings: <i>None, Mirror, Flip, Mirror +Flip</i> . Image Rotated rotates the image by the specified angle. Available settings: <i>0, 90, 270</i> .
streams	Video Clip Format Snapshot Format	Video clip format sets the streaming profile used for video recordings (scheduled or event-triggered). Snapshot format sets the streaming profile used for storing snapshots (scheduled or event-triggered).
	Capture Mode	Only for KIARA 5000 and MIRA 5000. Capture Mode defines the native capture resolution of the sensor. Available settings: <i>5MP@30fps, 2MP@60fps</i> . This setting affects the available video resolutions for each streaming profile.
overlay	Overlay	Overlay sets the text to display on top of the video frame. Available settings: <i>None, Time Stamp, Title, Title & Time Stamp</i> .



profile

This section lets you display and manage the streaming profiles.

To create a new profile click **Add**.

To modify or delete an existing profile click **Edit** or **Remove**.



There can be a minimum of 2 and a maximum of 4 streaming profiles.

The Add and Edit buttons open the configuration window for the selected profile.

The screenshot shows a configuration window for a streaming profile named 'Profile1'. The window is divided into sections for 'profile', 'video', and 'audio' settings.

profile section:

- Profile Name: Profile1
- Profile Description: profile1

video section:

- Encoding: H264
- Profile: High
- Resolution: 1920x1080
- Maximum frame rate: 30 fps (1~60)
- Quality:
 - Fixed Quality: Detailed
 - Maximum Bitrate: 8M
 - Fixed Bitrate: 2M
- Smart Codec: Level

audio section:

- Audio Stream: On
- Current Audio Setting:
 - Audio Mode: Full Duplex
 - Audio Input: 0db / g.711_u-law
 - Audio Output: 0db

At the bottom right are 'save' and 'undo' buttons.

The parameters are explained in the table below.

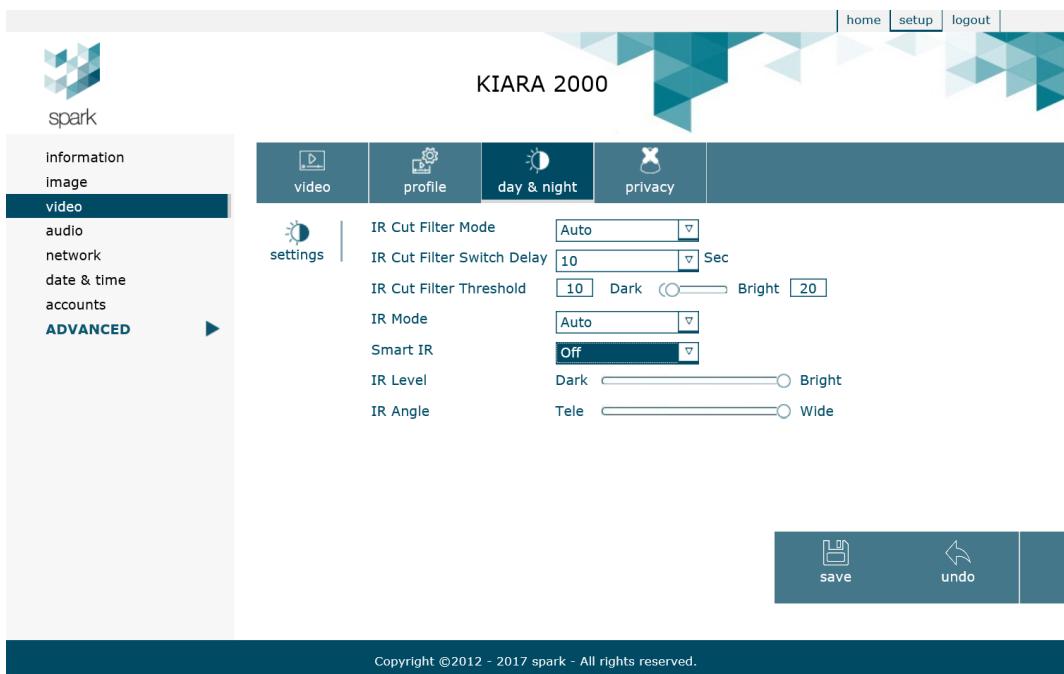


Profile	Profile name, Profile description	<p>Profile Name sets the name assigned to the streaming profile. The permitted characters are 0-9, a-z, A-Z, ".", "_".</p> <p>Profile description sets a short description of the profile. The permitted characters are 0-9, a-z, A-Z, ".", "_".</p>
video	Encoding, Profile, Resolution, Maximum frame rate	<p>Encoding sets the video compression method, in order to adapt the video stream to the network infrastructure where the camera is installed. This parameter significantly affects the network loading and the quality of the video. Available settings: <i>H264, H265, MJPEG</i>.</p> <p> H.265 is the best protocol in terms of quality and compression, but may not be supported by all clients (including NVR).</p> <p>Profile is the set of capabilities supported by the H.264 protocol. Available settings: <i>Baseline, Main, High</i>.</p> <p>Resolution determines the size of the frame in terms of pixels and form factor.</p> <p>Max. frame rate is the number of frames per second that the video camera is able to transmit. Higher values result in more fluid video images, but also in higher bandwidth consumption.</p> <p> If more than two streaming profiles are defined, the frame rate cannot exceed 30fps for each of them.</p>
	Quality	<p>Fixed quality: you can set a predefined video quality level (choosing between <i>Medium, Standard, Good, Detailed, Excellent</i>) and allow the video streaming to reach the limit set by the Maximum Bitrate parameter to keep bandwidth consumption under control.</p> <p>Alternatively, select <i>Customize</i> and adjust the cursor to set the desired balance between video quality and compression.</p> <p>Fixed bitrate: the video camera will automatically adjust the video quality to maintain the specified bandwidth consumption.</p> <p> If the microSD card is enabled, the quality is forced to Medium.</p> <p> If MJPEG encoding is selected, the Fixed Bitrate parameter is disabled.</p>
	Smart Codec	This is a compression strategy that seeks to reduce bandwidth consumption without loss of overall quality. In particular, it applies higher compression to the static portions of the image while maintaining higher quality, with less compression, for the moving portions. The available settings are <i>Off, Better, Best</i> .
Audio	Audio stream	Enables the audio stream.
	Current Audio Setting	Displays the current audio parameters.



day & night

The video camera has an infrared (IR) blocking filter that cuts out the IR component of the captured light. In dark conditions it is recommended to disable the IR filter. The infrared LED illuminator allows the camera to capture images in total darkness.



The parameters are explained in the table below.

IR Cut Filter Mode	The available settings are: Auto: the video camera determines when to remove the filter based on the configured activation threshold. Night Mode: the video camera remains sensitive to infrared light, irrespective of the ambient light level, and the image is displayed in black and white. This mode is not recommended for daylight conditions, because the video images will have distorted colors. Day Mode: the video camera places the IR filter in front of the sensor, allowing only visible light to pass through, and the images are displayed in color. This mode can also be used in low light conditions, but in this case the infrared illuminator cannot be used. Schedule: lets you program a schedule for switching the video camera between night and day mode. This function is described in more detail below.
IR Cut Filter Switch Delay	Sets the delay, in seconds, before the video camera places or removes the IR filter.
IR Cut Filter Threshold	Lets you set two threshold values for switching to night mode (lower threshold) and to day mode (upper threshold). When the ambient light falls below the lower threshold, the video camera switches to night mode. If the ambient light exceeds the upper threshold, the video camera switches to day mode. For ambient light levels between the two thresholds, the video camera stays in the current mode.
IR Mode	The available settings are: Auto: the infrared LEDs turn on whenever the IR filter is removed. Active: the infrared LEDs always stay on, irrespective of the IR filter state. To prolong the life of the infrared LEDs, avoid selecting this option except in dark environments that need to be continually illuminated. Inactive: the infrared LEDs are always off, even if night mode is active. Schedule: Lets you create a schedule for turning the LEDs on and off.



Smart IR	This technology avoids over-exposing objects illuminated by the infrared lighting. As an object moves closer or further away within the video camera's field of view, the intensity of the infrared LEDs is automatically adjusted so as to capture optimal images. If the Smart IR function is disabled, the following two parameters become available: IR Level sets the power emitted by the LEDs, IR Angle adjusts the illumination angle between Wide (wide emission angle, medium depth) and Tele (narrow emission angle and high depth).
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privacy

Privacy zones let you conceal sensitive areas (such as windows of adjoining buildings) to exclude them from view on the monitor and in the recorded video images. The privacy mask is displayed as a colored region on the screen. Each privacy mask can be assigned a different color (Black, Gray, White or Red) and can be enabled or disabled.

The screenshot shows the KIARA 2000 software interface. At the top, there is a navigation bar with icons for home, setup, and logout. Below the navigation bar, the KIARA 2000 logo is displayed. On the left, a sidebar menu includes options like Information, Image, **video**, audio, network, date & time, accounts, and ADVANCED. The ADVANCED option is highlighted. In the center, there is a table for managing privacy masks. The table has columns for Name, Color, and Status. One row is shown with the name 'MASK', color 'gray', and status 'on'. At the bottom of the table are buttons for Add, Edit, and Remove. A copyright notice at the bottom of the screen reads 'Copyright ©2012 - 2017 spark - All rights reserved.'

To create a new mask click [Add](#).

To edit or delete an existing mask click [Edit](#) or [Remove](#).



audio

The parameters are explained in the table below.

Audio in	Audio Mode	The available settings are <i>Full Duplex</i> (audio is sent in both directions simultaneously), <i>Half Duplex</i> (audio is sent in both directions, but only one party at a time can send), <i>Talk only</i> (audio is sent only in one direction, toward the video camera) and <i>Listen only</i> (audio is sent only in one direction, from the video camera).
	Audio Input Gain	Sets the gain of the incoming signal.
	Audio Encoding	The available settings are: <i>g.711 u-law</i> : encoding used in North America and Japan. <i>g.711 a-law</i> : encoding used in Europe and the rest of the world. <i>AMR</i> : third-generation encoding for mobile telephony. The data transmission speed can be configured. <i>g.726</i> : audio compression standard defined by the International Telecommunication Union (ITU).
	Environment noise suppression	The available settings are: <i>High</i> , <i>Low</i> , <i>Off</i> .
	Audio out	Audio Output Gain

In full duplex mode there may be an echo caused by the microphone capturing the loudspeaker output. In this case, it is recommended to use a headset, or to move the loudspeakers away from the microphone.





network

In this section you can configure the network parameters of the video camera.

The screenshot shows the network configuration interface for the KIARA 2000. The left sidebar has a 'network' tab selected. The top navigation bar includes 'home', 'setup', and 'logout'. The main area has tabs for 'tcp/ip', 'PPPoE', and 'WIFI'. The 'tcp/ip' tab is active. It displays the MAC Address (20:E4:07:00:02:0E) and two IP configuration sections: IPv4 and IPv6. Under IPv4, there are three options: 'Obtain an IP address automatically (DHCP)', which is selected; 'Use the following IP address', which is also selected; and 'Use the following DNS server address'. Under 'Use the following IP address', fields for IP Address (172.20.6.54), Subnet Mask (255.255.248.0), and Default Gateway (172.20.0.254) are filled. Under 'Use the following DNS server address', fields for Preferred DNS Server (172.20.0.2) and Alternate DNS Server (8.8.4.4) are filled. Under IPv6, the IP Address is fe80:0000:0000:0000:22e4:07ff:fe00:020e / 64. The HTTP Port is set to 80. At the bottom right are 'save' and 'undo' buttons. A copyright notice at the bottom states 'Copyright ©2012 - 2017 spark - All rights reserved.'

tcp/ip

The parameters are explained in the table below.

mac	MAC Address	Displays the MAC (Media Access Control) address, which is the unique address of the video camera's network interface.
IPv4	Obtain an IP address automatically (DHCP)	Select this option to have the DHCP server assign an IP address to the video camera (dynamic IP).
	Use the following IP address	Select this option to assign a static IP address to the video camera, and enter valid values in the fields underneath. You must also provide the addresses of the primary DNS server and the secondary DNS server.
	Use the following DNS server address	With both DHCP and static IP, you must specify a primary DNS server and a secondary DNS server for redundancy.
	Obtain DNS address automatically	In the case of a dynamic IP address, you can obtain the DNS server addresses from the DHCP server.
IPv6	IP Address	This value is automatically assigned by converting the video camera's MAC address, and cannot be edited by the user.
http	HTTP Port	The value normally used is 80. To use a different port, for example 8080, enter the new value in this field. The video camera will then be reachable at the new address http://videocameraaddress:8080/



PPPoE

PPPoE is a network protocol that can be used for directly connecting the video camera to a DSL modem.

The parameters are explained in the table below.

Enabled	Enables or disables the protocol.
Authentication method	The available settings are: <i>PAP</i> or <i>CHAP</i> .
IP address	Contains the IP address obtained from the Internet provider. Displays 0.0.0.0 if the video camera is not connected to the Internet with PPPoE.
IPv6 address	Contains the IPv6 address obtained from the Internet provider. Displays 0.0.0.0 if the video camera is not connected to the Internet with PPPoE.
User ID	Enter the user name obtained from the Internet provider.
Password	Enter the password associated with the account.
Confirm password	Enter the password again.
Obtain DNS address automatically	Use the information sent to the video camera by the Internet provider.
Use the following DNS server address	Manually enter a primary DNS server and a secondary DNS server.

WiFi

The video camera can also communicate over a wireless LAN network.

The parameters are explained in the table below.

Enabled	Enables or disables the wireless connection.
MAC Address	Displays the Media Access Control address, which is the unique address of the video camera's network interface
IP address	Contains the IP address obtained from the WiFi router. Displays 0.0.0.0 if the video camera is not connected over WiFi.
ESSID	Acronym for Extended Server Set Identifier. This is the name of the WiFi network to which the video camera will connect.
Authentication	Select the WPA-PSK or WPA2-PSK security protocol. Select <i>Open</i> only if no authentication protocol is needed (not recommended).
Encryption	Select the TKIP or AES cryptographic protocol.
Passphrase	Enter a passphrase (64 HEX characters, or 8 to 63 ASCII characters).
Confirm	Enter the passphrase again.



date & time

In a video surveillance system that comprises multiple cameras, it is essential for the internal clocks of the devices to be synchronized. In fact, the different video recordings can only be identified and analyzed if all the video cameras are synchronized.

The screenshot shows the KIARA 2000/5000 user interface with a sidebar on the left containing links for information, image, video, audio, network, date & time (which is highlighted), accounts, and ADVANCED. The main content area has a header "KIARA 2000" and navigation buttons for home, setup, and logout. The "date & time" tab is active. The configuration section includes:

- current**:
 - Current Date/Time: 2017-06-19 15:32:17
 - PC Clock: 2017-06-19 16:32:16
 - Date/Time Format: yyyy-mm-dd hh:mm:ss (dropdown menu)
- sync**:
 - Synchronize with client PC
 - Manual Settings
 - Synchronize with NTP
 - Use the following NTP server address
 - server 1: pool.ntp.org [Test]
 - server 2: 1.pool.ntp.org [Test]
 - server 3: 2.pool.ntp.org [Test]
 - server 4: 3.pool.ntp.org [Test]
- timezone**:
 - (GMT+01:00)Amsterdam, Berlin, Bern, Rome, Stockholm, Vienna
 - Daylight Saving Time: On Off

At the bottom right are "save" and "undo" buttons. A copyright notice at the bottom states "Copyright ©2012 - 2017 spark - All rights reserved."



Modifying the parameters in this section while the video camera is recording may compromise the time-consistency of the recordings.

The parameters are explained in the table below.

current	Current Date/Time	Displays the current date and time of the video camera.
	PC Clock	Displays the date and time of the PC that was used to connect to the video camera.
	Date/Time Format	Select the format to display while displaying the video images.
sync	Synchronize with Client PC	Synchronize the video camera clock with the currently connected PC. Repeat this operation at regular intervals to avoid loss of synchronization between the video camera and PC clocks.
	Manual Settings	Set the date and time manually.
	Synchronize with NTP	This is the recommended option. The video camera obtains the date and time from an NTP (network time protocol) server. You must provide the addresses of four servers to guarantee that at least one is reachable and can provide the correct time.
		From the drop-down list, select the time zone of your location.



timezone	Daylight Saving Time	You can configure the start and end of daylight saving time by date or by week.
-----------------	-----------------------------	---------------------------------------------------------------------------------



account

The video camera supports creating users with different roles, so as to selectively limit what operations are allowed depending on the user's role. Unauthorized access to the peripheral is prevented by a password.

KIARA 2000

accounts

User Name	Group
admin	Administrator

Add Edit Remove

Anonymous Disabled

save undo

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To create a new user, click [Add](#)

To edit or delete an existing account, click [Edit](#) or [Remove](#)

Each user can be assigned one of the following groups:

- **Viewer:** can only view the live video stream.
- **Operator:** can view the live video stream and modify only some of the configuration parameters.
- **Administrator:** as well as viewing the live video stream, can fully access all the configuration parameters.

You can create up to a maximum of nine users. The password must be between 4 and 16 characters in length.



The admin user cannot be removed.

The **Anonymous** function, if enabled, allows the live video stream to be viewed without logging in. In this case, the configuration menu cannot be accessed without entering valid credentials.



Advanced settings

archive

The video camera has an integrated video player (only Internet Explorer) for viewing the recordings made. Recordings can be loaded from a network server (NAS) or from an SD card.

player

Video recordings in H.264/H.265 format can be played back by opening the corresponding file (requires VLC plugin).

network

The integrated video player lets you easily find and retrieve previously recorded videos on a network server and view them directly from a web browser.

internal

This section lets you retrieve recordings stored on the SD card and view them directly on a web browser.



recording server

The video camera can store recorded video and images on a server connected to the video camera. It is possible to record continuous video sequences, as well as images or short clips triggered by different types of events.



To initiate event-based recording, you need to first configure the recording server.

network

To create a new recording server click [Add](#).

To edit or delete an existing server click [Edit](#) or [Remove](#).

When you click Add or Edit, a server configuration window displays. From the **Server Type** drop-down list you can select the values described in the following sections.

The screenshot shows the 'Server Configuration' page in Internet Explorer. The URL is http://172.20.6.54/event_server_setting.htm?mod_0. The page is divided into three main sections: **server**, **login**, and **settings**.

- server:** Fields include Name (NAS), Server type (Network Storage), Type (Windows Network (SMB/CIFS)), Network Storage Location (\\\NAS1\Public\...), and Cyclic Size (5120 MB).
- login:** Fields include Domain (SPARK), User Name (admin@172.20.6.54), Password, and Re-type Password.
- settings:** Fields include Available memory buffer (22528 / 30720 KB), Attached Type (Video), Pre-event Recording (5 seconds [0~7]), and Post-event Recording (7 seconds [1~7]).

At the bottom right are 'save' and 'undo' buttons.

FTP

The parameters are explained in the table below.



server	Name	Assign a name to the server.
	Server type	File Transfer Protocol.
	Network address	Enter the IP address of the server.
	Server Port	Default is 21.
	Upload path	Specify the path for storing the files (recordings and snapshots).
login	User Name	Enter valid credentials for accessing the server.
	Password	
	Confirm Password	Enter the password again.
settings	Passive mode	Enable if the FTP server uses passive mode.
	Available memory buffer	Displays the amount of buffer memory available.
	Attached type	Select the type of file to be uploaded, choosing between Snapshot and Video.
	Pre-event Image / Pre-event recording	Specify how many images / seconds of recording previous to the event must be sent.
	Post-event Image / Post-event Recording	Specify how many images / seconds of recording subsequent to the event must be sent.
	Image File Name	Enter the basic name (prefix) for the file.
	Suffix	Enable if you want to append a date-and-time suffix to the basic file name.

Click **Test Connection** to check that the entered values are correct.

SMTP

The parameters are explained in the table below.

server	Name	Assign a name to the server.
	Server type	Simple Mail Transfer Protocol.
	Email Server	Enter the IP address of the server.
	Server Port	Default value is 25. Select the SSL check box to encrypt the transmitted data.
	Authentication	Enable if the server requires authentication for sending email. Then select the type of authentication (SMTP and/or POP before SMTP)
	Send email from	Sets the email address of the sender, that is, the video camera.
	Send test email to	Enter the email address of the recipient of the messages.
settings	Available memory buffer	Displays the amount of buffer memory available.
	Attached type	Select the type of file to be uploaded, choosing between Snapshot and Video.
	Pre-event Image / Pre-event recording	Specify how many images / seconds of video preceding the event are to be sent.
	Post-event Image / Post-event Recording	Specify how many images / seconds of video after the event are to be sent.

Click **Test Connection** to check that the entered values are correct.



HTTP / HTTPS

The parameters are explained in the table below.

server	Name	Assign a name to the server.
	Server type	Web server.
	URL	Enter the IP address of the web server.
	Port	Default port is 80 for HTTP connections. Default port is 443 for HTTPS connections.
	Proxy Server	Enter the IP address of the proxy server.
	Proxy Port	Enter the port for communicating with the proxy server.
	Proxy User Name Proxy Password	Enter valid credentials for accessing the proxy server.
login	User ID Password	Enter valid credentials for accessing the HHTP/ HTTPS server..
	Confirm Password	Enter the password again.

Network Storage.

You can select two types of network storage:

- Windows Network (SMB/CIFS)

The parameters are explained in the table below.

server	Name	Assign a name to the server.
	Server type	Network storage
	Type	Windows Network (SMB/CIFS)
	Network Storage Location	Specify the path on disk for storing the files.
	Buffer size	Displays the size of the buffer
login	Domain	Enter the domain.
	User ID Password	Enter valid credentials for accessing the network file system.
	Confirm Password	Enter the password again.
settings	Available memory buffer	Displays the amount of buffer memory available.
	Attached type	Select the type of file to be uploaded, choosing between Snapshot and Video.
	Pre-event Image / Pre-event recording	Specify how many images / seconds of video preceding the event need to be sent.
	Post-event Image / Post-event Recording	Specify how many images / seconds of video after the event are to be sent.

Click **Test Connection** to check that the entered values are correct.

- Network File System (NFS)

The parameters are explained in the table below.

server	Name	Assign a name to the server.
	Server type	Network Storage
	Type	Network File System
	Network Storage Location	Specify the path on disk for storing the files.
	Buffer size	Displays the size of the buffer



Settings	Available memory buffer	Displays the amount of buffer memory available.
	Attached type	Select the type of file to be uploaded, choosing between Snapshot and Video.
	Pre-event Image / Pre-event recording	Specify how many images / seconds of video preceding the event need to be sent.
	Post-event Image / Post-event Recording	Specify how many images / seconds of video after the event are to be sent.

Click [Test Connection](#) to check that the entered values are correct.

internal

Insert an SDcard into the video camera and enable the memory card. To format the inserted card, click [Execute](#). When the formatting is complete, the card can be used for storing video recordings.



Only the FAT32 format is supported.



recordings

After at least one recording server is configured, you can define events and the actions triggered by them.

events

To create a new event click [Add](#).

To edit or delete an existing event click [Edit](#) or [Remove](#).

When you click Add or Edit, an event configuration window opens.

The screenshot shows the 'Event Configuration - Internet Explorer' window. The URL is http://172.20.6.54/event_list_setting.htm?mod_0. The configuration is for an event named 'Motion'. The 'event' section has 'Enabled' set to 'On' and 'Triggered by' set to 'Digital Input'. The 'settings' section includes a 'Set min time interval between triggers' field set to '10 Sec', and two 'Digital Input' dropdowns both set to 'Active'. The 'action' section has a checked 'Send Media' checkbox, and an 'Event Server' table with one entry for 'NAS' (Type: NS, Media: Video, pre:5, post:7). Below this is a note: 'Please Configure [Event Server](#) or [SD Card](#)'. There are also unchecked checkboxes for 'Send Notification' and 'Activate Digital Output'. The 'schedules' section has a radio button for 'Always' selected, and another for 'Schedule' with 'WorkingDay' chosen. Below this is a note: 'Please Configure [Schedule](#)'. At the bottom are 'save' and 'undo' buttons.

From the **Triggered by** drop-down list, you can select the following values:

Motion Detection

The parameters are explained in the table below.

event	Name	Assign a name to the event
	Enabled	Enable / disable the event.
	Triggered by	Motion Detection: the event is triggered when the video camera detects movement.



		Before creating an event, you need to configure Motion detection (described below).
settings	Set min time interval between triggers	Enter the minimum amount of time that must elapse between two distinct and consecutive alarms.
	Detection Area	Select one of the areas of interest created previously when configuring Motion detection.
	Detection type	Start: The event is linked to the moment when the detected motion starts. End: The event is linked to the moment when the detected motion ends. Configure Motion Detection: Opens the Motion detection configuration window.
action	Send Media	Select the check box of the recording server for sending video or images. Configure Event Server: Opens the server configuration window. Configure SD Card: Opens the SD card configuration window.
	Send Notification	Select the check box to issue a notification. Configure HTTP Server: Opens the server configuration window. Configure HTTPS Server: Opens the server configuration window.
	Activate Digital Output	Select the check box to enable a digital output signal.
schedules	Always	The action will always be triggered in response to this event.
	Schedule	Lets you schedule when the action will be triggered in response to this event.
	Configure Schedule	Opens the schedules configuration window.

Audio detection

The parameters are explained in the table below.

event	Name	Assign a name to the event.
	Enabled	Enable / disable the event.
	Triggered by	Audio Detection: the event is triggered when the video camera detects a sound level above a pre-configured threshold. Before configuring an event, you need to configure Audio detection (described below).
settings	Set min time interval between triggers	Enter the minimum amount of time that must elapse between two distinct and consecutive alarms.
	Detection type	Start: The event is linked to the moment when the detected sound starts. End: The event is linked to the moment when the detected sound ends. Configure Audio Detection: Opens the Audio detection configuration window.



	Send Media	Select the check box of the recording server for sending video or images. Configure Event Server: Opens the server configuration window. Configure SD Card: Opens SD card configuration window.
action	Send Notification	Select the check box to send a notification. Configure HTTP Server: Opens the server configuration window. Configure HTTPS Server: Opens the server configuration window.
	Activate Digital Output	Select the check box to enable a digital output signal.
schedules	Always	The action will always be triggered in response to this event.
	Schedule	Lets you schedule when the action will be triggered in response to this event.
	Configure Schedule	Opens the schedules configuration window.

Digital Input

The parameters are explained in the table below.

	Name	Assign a name to the event
	Enabled	Enable / disable the event.
event	Triggered by	Digital Input: the event is triggered when the video camera receives a digital input signal, for example from a motion sensor external to the video camera.
settings	Set min time interval between triggers	Enter the minimum amount of time that must elapse between two distinct and consecutive alarms.
	Digital input	Select the check boxes corresponding to the inputs that will be used. From the drop-down list you can select the following: Active: to trigger the event on logic level 1, Inactive: to trigger the event on logic level 0, Transition: to trigger the event when the input signal changes state.
action	Send Media	Select the check box of the recording server for sending video or images. Configure Events Server: Opens the server configuration window. Configure SD Card: Opens the SD card configuration window.
	Send Notification	Select the check box to issue a notification. Configure HTTP Server: Opens the server configuration window. Configure HTTPS Server: Opens the server configuration window.
	Activate Digital Output	Select the check box to enable a digital output signal.
schedules	Always	The action will always be triggered in response to this event.
	Schedule	Lets you schedule when the action will be triggered in response to this event.
	Configure Schedule	Opens the schedules configuration window.



Periodical

The parameters are explained in the table below.

event	Name	Assign a name to the event
	Enabled	Enable / disable the event.
	Triggered by	Repeating: the video camera triggers the event repeatedly at regular intervals.
settings	Activate every	Enter the hours and minutes in the respective fields.
action	Send Media	Select the check box of the recording server for sending video or images. <i>Configure Events Server:</i> Opens the server configuration window. <i>Configure SD Card:</i> Opens the SD card configuration window.
	Send Notification	Select the check box to issue a notification. <i>Configure HTTP Server:</i> Opens the server configuration window. <i>Configure HTTPS Server:</i> Opens the server configuration window.
	Activate Digital Output	Select the check box to enable a digital output signal.
schedules	Always	The action will always be triggered in response to this event.
	Schedule	Lets you schedule when the action will be triggered in response to this event.
	Configure Schedule	Opens the schedules configuration window.

Network Link Down

The parameters are explained in the table below.

event	Name	Assign a name to the event
	Enabled	Enable / disable the event.
	Triggered by	Network Link Down: an event is triggered if the network connection is lost.
action	Send Media	Select the check box of the recording server for sending video or images. <i>Configure Event Server:</i> Opens the server configuration window. <i>Configure SD Card:</i> Opens the SD card configuration window.
	Send Notification	Select the check box to issue a notification. <i>Configure HTTP Server:</i> Opens the server configuration window. <i>Configure HTTPS Server:</i> Opens the server configuration window.
	Activate Digital Output	Select the check box to enable a digital output signal.
	Always	The action will always be triggered in response to this event.
schedules	Schedule	Lets you schedule when the action will be triggered in response to this event.
	Configure Schedule	Opens the schedules configuration window.



The function is not available if the video camera is powered via PoE (Power over Ethernet).



continuous

In this section you can manage the schedules for continuous recordings.

To create a new scheduled recording, click [Add](#).

To edit or delete an existing recording click [Edit](#) or [Remove](#).

The parameters are explained in the table below.

recording	Name	Assign a name to the recording.
	Enabled	Enable / disable the scheduled recording.
settings	File size	The continuous recording is subdivided into separate consecutive video clips to simplify video exporting. Specify the maximum file size that a single video clip can have.
	Events Server	Select the recording server for saving the video. Configure Network Storage: Opens the Network Storage configuration window. Configure Local Storage: Opens the SD card configuration window.
schedules	Always	The video camera records continuously.
	Schedule	Lets you configure a schedule for when recordings will be made.
	Configure Schedule	Opens the schedules configuration window.



motion detection

The video camera monitors the video stream and generates an alarm if motion is detected. The motion detection is done by frame-by-frame comparison of the captured video.

The screenshot shows the KIARA 2000 web-based configuration interface. At the top, there's a navigation bar with icons for home, setup, and logout. The main title 'KIARA 2000' is centered above a video preview window. On the left, a sidebar menu lists various configuration options under 'spark'. The 'ADVANCED' section is expanded, showing 'motion detection' as the selected item. Below the sidebar, the main content area has a blue header bar with 'motion detect' and a camera icon. The central part of the screen displays a live video feed of an outdoor parking lot with several cars and a building in the background. A yellow rectangular box highlights a specific area of interest, which is overlaid with a red rectangle indicating the motion detection threshold. Below the video, there are configuration settings for this area: 'Name' set to 'Motion detection', 'Threshold' set to 50, and 'Sensitivity' set to 50. There are 'Add' and 'Remove' buttons for managing areas of interest. To the right, there's a 'Area Name' section with a 'Motion detection' entry and a 'save' button. At the bottom of the page, a copyright notice reads 'Copyright ©2012 - 2017 spark - All rights reserved.'

You can create multiple areas of interest for motion detection.

To create a new area of interest click [Add](#).

To delete an existing area of interest click [Remove](#).

The parameters are explained in the table below.

Name	Assign a name to the area to monitor.
Threshold	This is graphically represented by the yellow bar at the top of the frame. Movements of objects bigger than this threshold will generate the alarm.
Sensitivity	This is graphically represented by the green bar at the top of the frame. It determines magnitude of change in the monitored area that will be considered a movement.



The optimal values for the **Threshold** and **Sensitivity** parameters depend on the application and on the operating environment of the video camera. In general, increasing the sensitivity and lowering the threshold will generate more alarms. Conversely, decreasing the sensitivity and raising the threshold might fail to detect significant occurrences.



audio detection

Enable Audio detection to access the **Threshold** and **Volume** parameters, which are similar to those discussed above for Motion detection. **Volume** refers to the sensitivity of the microphone in detecting sound. **Threshold** defines the sound level which, if exceeded, causes the video camera will generate an audio event.

The optimal values for the **Volume** and **Threshold** parameters depend on the application and on the operating environment of the video camera. In general, increasing the volume and lowering the threshold will generate more alarms. Conversely, decreasing the volume and raising the threshold might fail to detect significant occurrences.



schedules

The video camera can be configured to execute planned actions. For example, motion detection can be enabled from 9 am to 6 pm during working days and around midday on weekends. You can also assign a distinct schedule to each type of event (see **recording server** section).

The screenshot shows the KIARA 2000 software interface for managing schedules. On the left, a sidebar lists various configuration options under 'ADVANCED'. The 'schedules' option is currently selected and highlighted in dark blue. The main area features a weekly calendar grid from Monday to Sunday, where each hour of the day is represented by a 24-hour clock face. The 'WorkingDay' schedule is applied to most days of the week, appearing in blue, while other times and days are shown in grey. Below the calendar, there's a checkbox labeled 'Use the same time schedule every day.' followed by a 'Clear All' button. To the right of the calendar, a 'Schedule Name' section lists 'WorkingDay', 'Weekend', and 'Night'. At the bottom, there are 'Add', 'Remove', 'Save', and 'Undo' buttons.

WorkingDay, *Weekend* and *Night* are predefined schedules which can be edited but not removed.

To create a new schedule edit the **Name** field and click **Add**.

To delete an existing schedule (apart from the predefined ones) click: **Remove**.

The calendar displays the times when the schedule is active in blue. Click and drag on the calendar to select /deselect the times of interest.

Select the check box **Use the same schedule every day** to copy the schedule of a single day to all the other days of the week.

Click **Clear All** to clear all the times programmed in the current schedule.



digital I/O

I/O

This section contains the digital inputs and outputs managed by the video camera. You can define the resting state for each signal by selecting *Normally open* or *Normally closed*. You can also read the current state of each digital signal.

LED

The parameters are explained in the table below.

status LED	You can enable or disable the video camera status indicator LEDs. The video camera continues to work normally even if the indicator LED is disabled.
finder	Click to identify a video camera through the blinking of its status LED.



advanced network

RTSP

RTSP (Real Time Streaming Protocol) is a protocol designed for transmitting multimedia content over a network and is supported by various media players such as Real Player, VLC and QuickTime.

The parameters are explained in the table below.

settings	RTP Port Range	Predefined value 5000-7999.
	RSTP Port	Predefined value 554.
streams	Profile Name	Select a profile from the drop-down list.
	Profile	You can edit the URL associated with the profile. Based on the entered name, the streams are accessed by typing an address of the form <code>rtsp://<username>:<password>@<address>:<RTSPport>/<Profile></code>
	Authentication	Select <i>Enabled</i> or <i>Disabled</i> from the drop-down list. If authentication is disabled the streams can be accessed omitting <username> and <password> <code>rtsp://<address>:<RTSPport>/<Profile></code>
multicast	Status	Select <i>Enabled</i> or <i>Disabled</i> from the drop-down list.
	Access Name	Specify the name for accessing the stream.
	Multicast Address	Specify the multicast IP address.
	Video Port	Here you can modify the video port.
	Audio Port	Here you can modify the audio port.
	Time-To-live	Lets you modify the multicast TTL.

UPnP

UPnP (Universal Plug and Play) is a network protocol for multimedia applications that allows supported devices to be more easily integrated into a network.

Once the protocol is enabled, you can enable port forwarding by selecting the **Enable UPnP port forwarding** check box, and configure the ports that the video camera will open on the router. The router ports can also be opened manually.

The **Device name** field lets you define the name with which the video camera will appear on the network through UPnP.

bonjour

Bonjour is a network protocol similar to UPnP. Once the protocol is enabled, you can enter a unique name for the video camera in the **Device name** field. This is useful when there are multiple devices configured on the network.

QoS

In this section you can configure the Quality of Service for the video/audio streams and for events/alarms.



DDNS

DDNS (Dynamic Domain Name System) is a network service that lets a network device always be associated with the same domain name, even if the device's IP address changes over time.



You can skip this section if you do not plan to connect to the video camera through a remote connection.

The parameters are explained in the table below.

Enabled	Lets you enable/disable the service.
Server name	Select the desired provider from the drop-down list.
User ID Password	Enter valid credentials for accessing the provider.
Confirm Password	Enter the password again.
Host Name	Enter the name of the host.
Periodic Update	Lets you set the interval, in minutes, for periodically updating the association between the IP address and the assigned domain name. You can leave the default value <i>Auto</i> (recommended choice).



security

IP Filter

In this section you can enable a security check that filters the IP addresses of the clients that log onto the video camera.

To create a list of IP addresses enabled for login, select the filter type *Allow* and click Add

To create a list of IP addresses that are not allowed to log in select the filter type *Deny*.

HTTPS

The HTTPS protocol makes it possible to authenticate the identity of the connected video camera, encrypt the communications between the clients and the video camera, and guarantees the integrity of the data exchanged between them.

To enable use of the HTTPS protocol you need to create a digital certificate by clicking Create self-signed certificate.... The certificate auto-generated by the video camera will guarantee its identity.

You can define different policies for connecting to the video camera based on user role: only *HTTP* connection, only *HTTPS* connection, both *HTTP and HTTPS* connection.



HTTPS is used only to encrypt the data exchanged through the CGI (e.g. username, password, settings, etc.) but not to encrypt the audio/video stream.



maintenance

maintenance

To restart the video camera click [Restart](#).

To restore it to the default settings click [Restore defaults](#).

To back up the current configuration parameters to a file, or to import the configuration parameters previously backed up to a file, click [Backup config](#) or [Restore config](#) respectively

The parameters are explained in the table below.

restart	Auto Restart	Lets you enable/disable the automatic restart.
	Periodical	Sets the video camera to restart periodically. Select the desired number of days from the drop-down list.
	Scheduled	Sets specific days of the week and times when the video camera will be restarted.
backup restore	Except	Lets you exclude certain parameters when you restore the default configuration, for example the network settings, the date and time and the lens setup.

update

Firmware updates are periodically released that provide improvements and new functions.



Check that you obtained the correct firmware version before doing the update.



Do not update the firmware from a computer on a wireless network connection, as this type of connection is generally less stable.

To initiate the firmware update, click [Firmware update](#).

If you want to maintain some of the current configuration parameters even after the firmware update, select the **Restore to default** check box and then select the desired set of parameters.

To change the user interface language click [Language update](#).



system log

The video camera stores a log of system messages in memory. These messages concern, for example, the startup sequence, the sending of emails, motion detection and so forth.

The video camera stores the messages in its internal memory and displays them in this section: the messages may be truncated, owing to the limited size of the internal memory: To overcome this limit, you can use the remote log function, based on the System Log Protocol.

After enabling the remote log, enter the address of the system log server without the protocol identifier, such as http://, and the communication port (default value is 514).



Spark Security

KIARA/MIRA 2000/5000

User Manual

