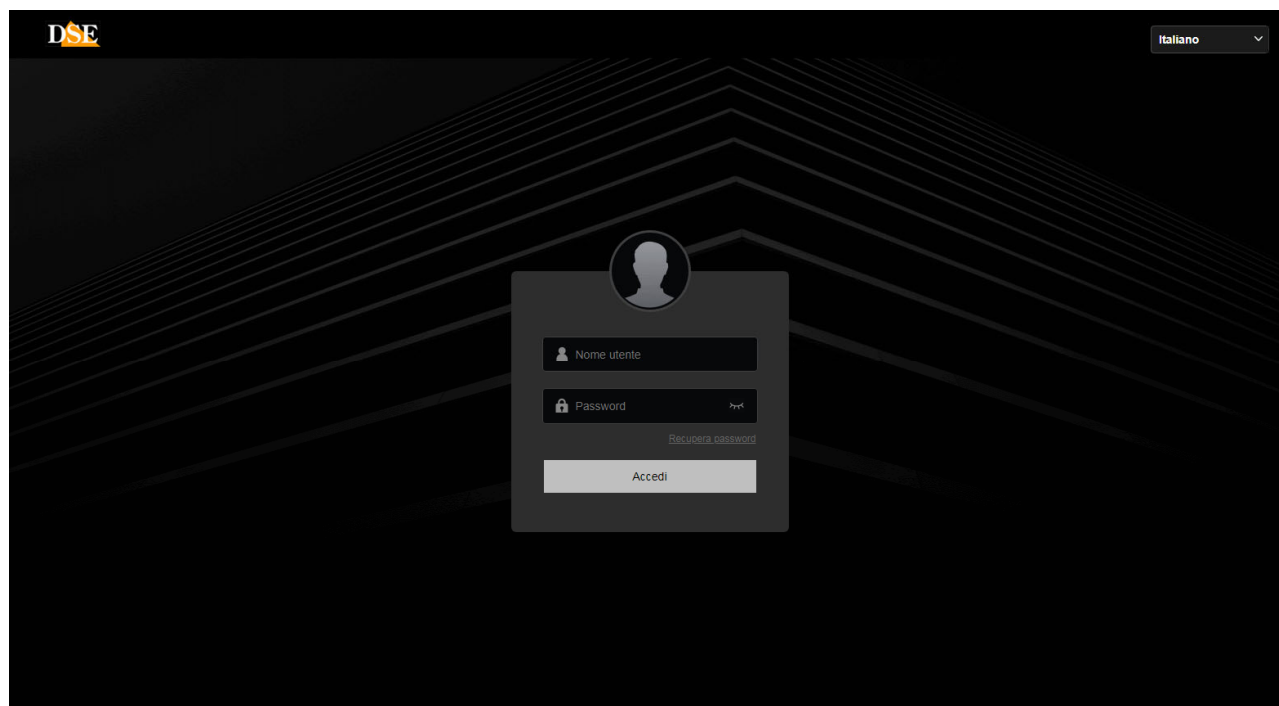




Configuration options

RK SERIES IP cameras GUI

Version 6.0



Operative manual for the installer and the user

How to configure the camera with the browser



Introduction

RK Series cameras have numerous configurable operating options. You can customize these settings by accessing the cameras with any Internet browser, such as Google Chrome or Firefox.

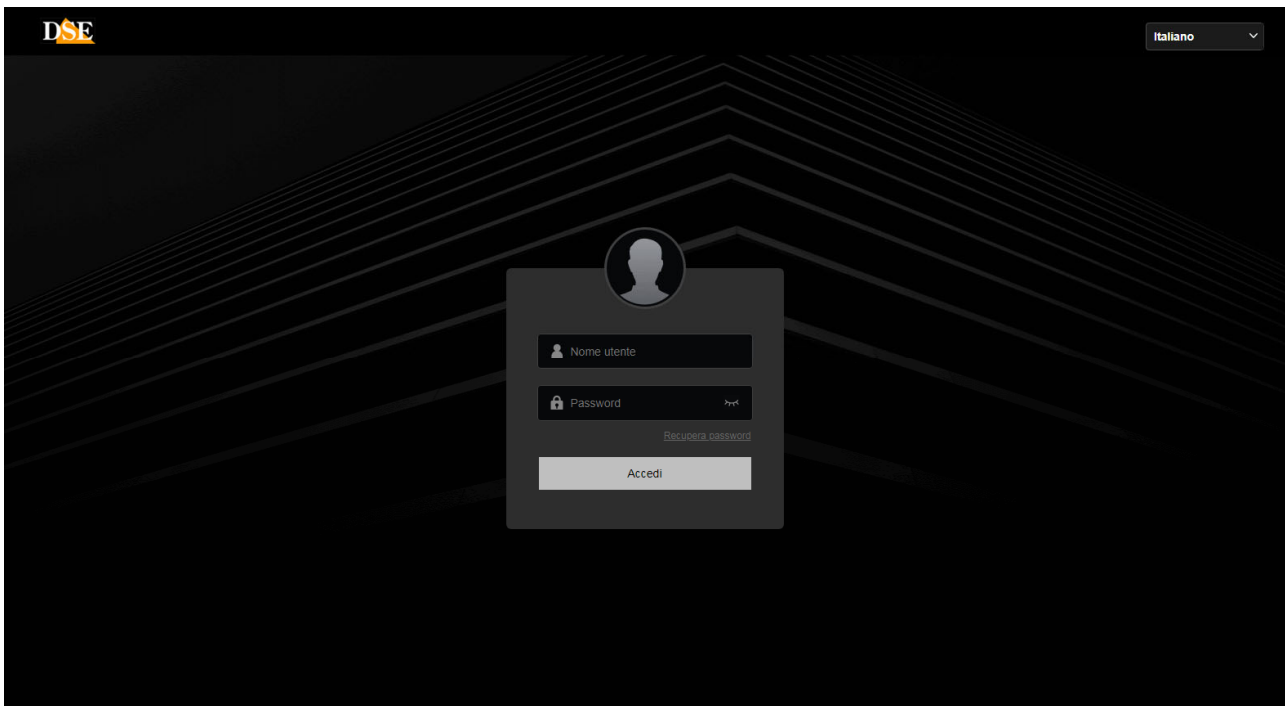
This manual explains all the configuration options.

Access with browser

The camera installation manual explains how to access the cameras with the PC using the browser. RK cameras today support all common browsers, while older models may only require Internet Explorer.

If you have never accessed your camera with the browser before, it is best to read the installation manual and follow the instructions to connect successfully.

In this manual we start from the login window in which to enter the username and password for access.



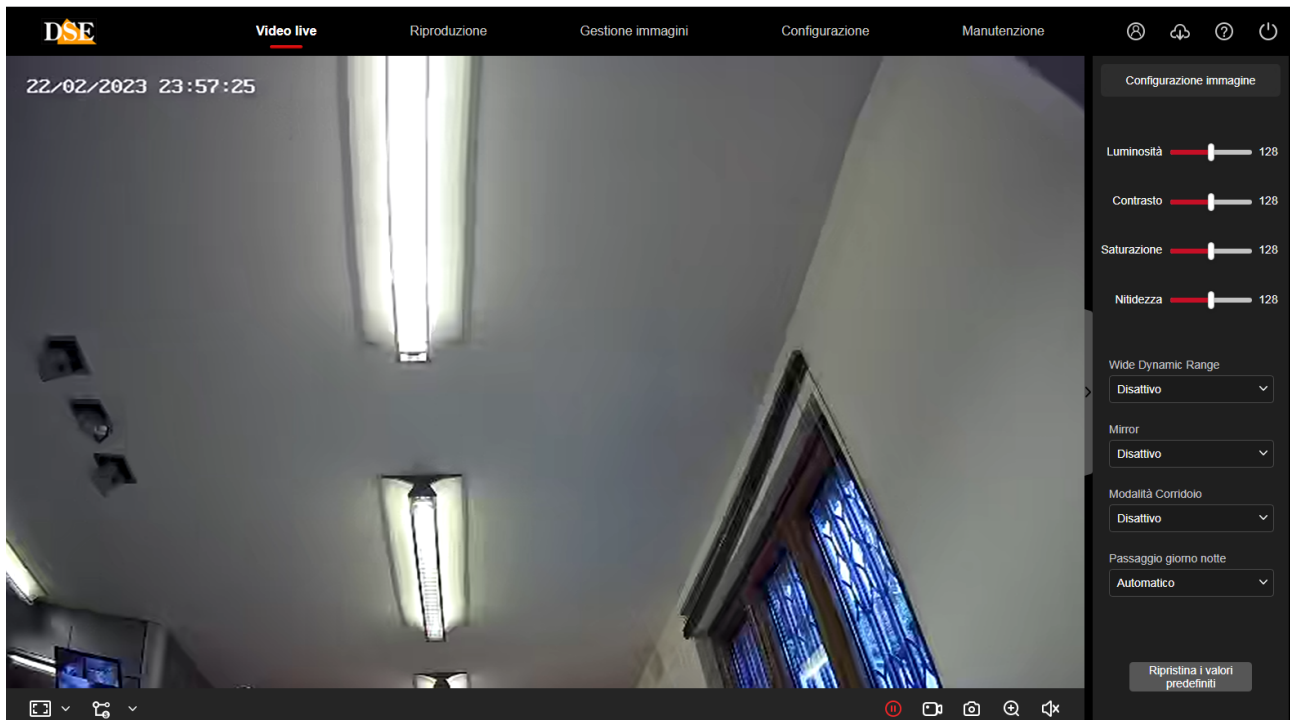
The factory access data of RK Series cameras are: **USERNAME:**

admin

PASSWORD: admin

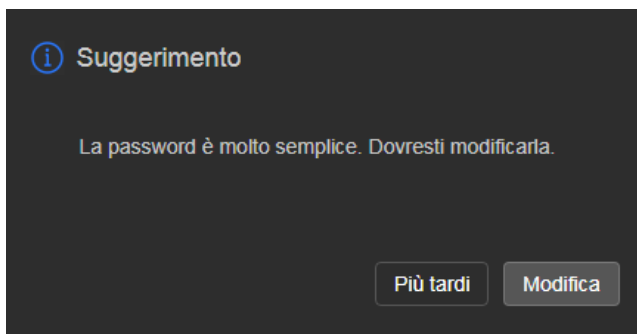
It is important to choose the **Italian language** to get the interface that is used in this manual. The CHOICE OF LANGUAGE is made in the choice box at the top right.

You access the camera control mask.



ATTENTION - It is possible to connect several clients simultaneously up to a maximum of 15 clients per camera.

A message suggests changing your factory password, if you haven't already done so. You can postpone, if you don't want to change the factory password for now.



PLUGIN INSTALLATION

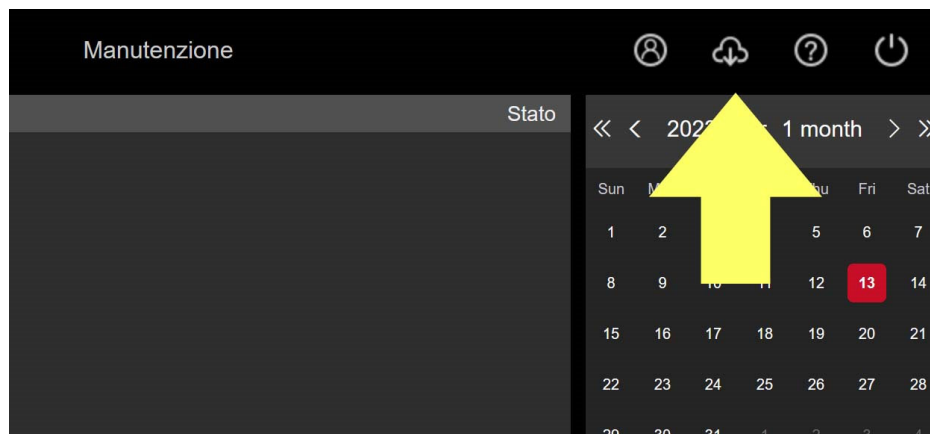
It is possible to connect to the camera with all browsers without installing any plugin and benefit from all the live viewing and configuration functions. Only for some functions, such as being able to play recordings stored in the SD card and to use two-way audio, it is necessary to install an additional plugin component by pressing the download button at the top right

CONFIGURATION MANUAL

RK SERIES - ONVIF IP CAMERAS (GUI vers. 6.0)



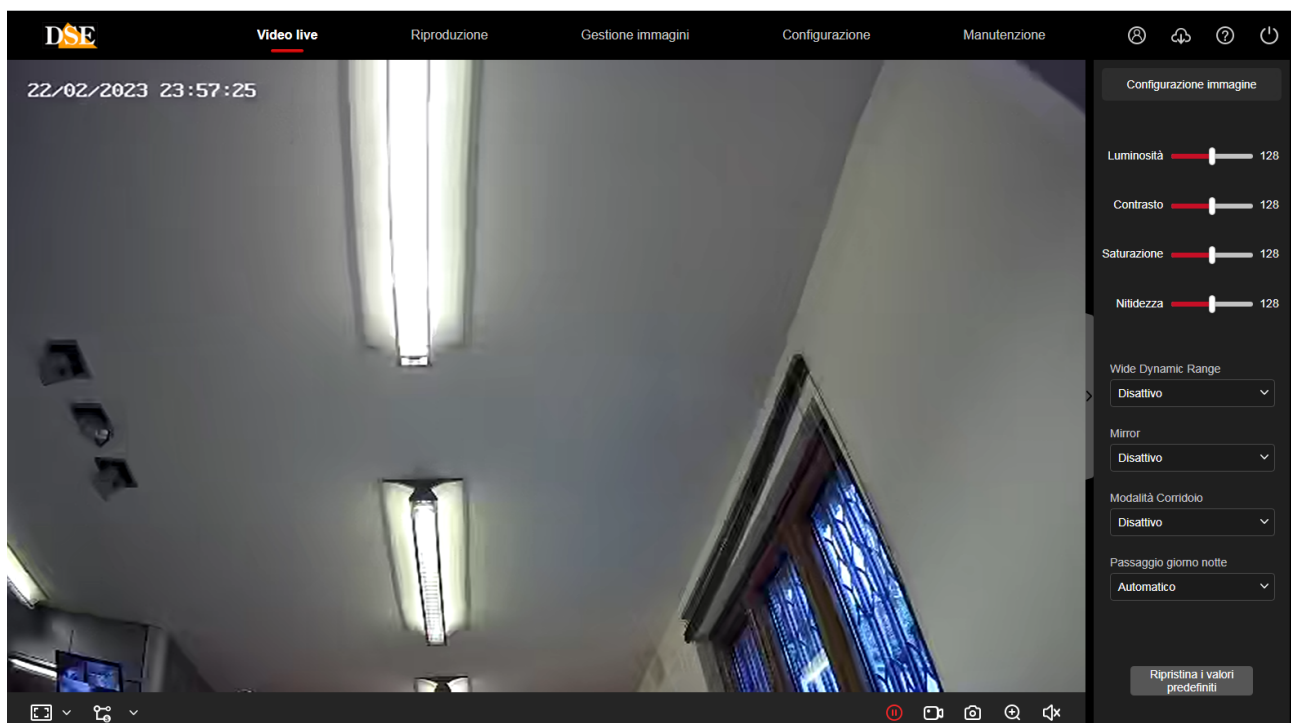
Page:5



Live video

When the connection starts, the LIVE view of the camera automatically opens.

If you have opened other configuration windows, press the button **LIVE VIDEO** up to return to live viewing.



Let's first see the functions available in the command bar at the bottom of the browser



The first button on the left allows you to choose the proportion of live viewing

4:3—This button reproduces the image in a 4:3 frame, typical analog video resolution. It can be used to see the image correctly when the camera is set to a 4:3 resolution such as VGA 640x480

16:9—This button reproduces the image in a 16:9 aspect ratio, typical of modern megapixel cameras. It can be used to see the image correctly when the camera is set to a 16:9 resolution such as HD 1280x720 or Full HD 1920x1080.

1:1—This button displays the camera on the screen in its original resolution format. If this format is larger than the number of pixels available on the screen, the image will only appear partially.



- This option is the factory one and shows the camera video

resizing it to take up all the available space in the window. This is normally the preferred viewing mode.

DOUBLE CLICK–Double clicking on the live image brings the view to full screen without the surrounding graphical interface. Double click again to exit.



MAIN STREAM/SUB STREAM/TRI STREAM–Each camera in this range can manage up to 3 different video streams, each with different resolution and bandwidth occupation. With these buttons you choose whether to receive the main stream or the secondary sub-stream or even the third stream. Sub stream and third stream are factory set to occupy less bandwidth and are therefore more suitable if the client has low performance.

At the bottom right there are commands available to the user



Starts and pauses live video viewing



Starts and pauses live video recording. By pressing the RECORD button, you begin to save the movie you are watching in real time on your PC. The word REC in red appears at the top right of the image, indicating recording in progress. Press the button again to stop recording and save the file. The movie is saved in AVI format in the native resolution of the video stream.

Please note that browser recording is intended for saving short clips and not for 24/7 continuous recording for which you need to use an NVR. The file saving folder is defined in configuration.



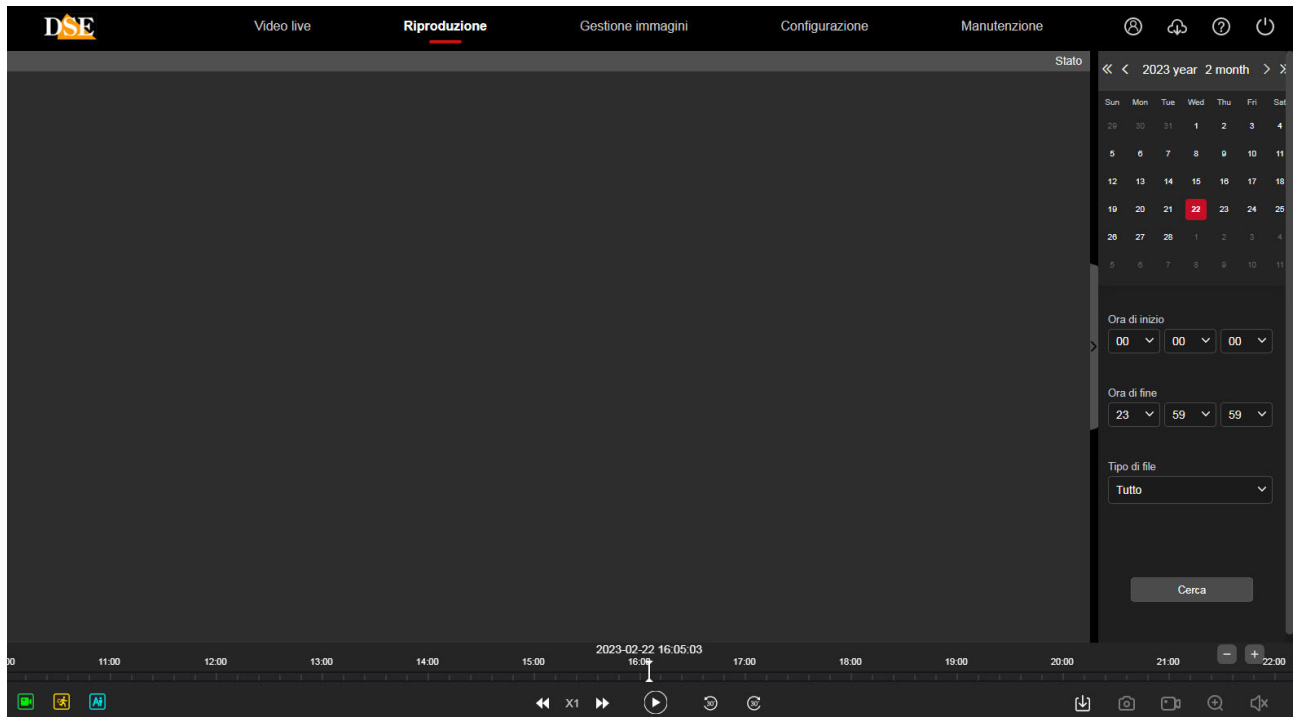
Take and save a photo. By pressing the button **TAKE A PICTURE** the frame is saved on the PC that is being seen at that moment. The image is automatically saved in JPG format in the native resolution of the video stream.



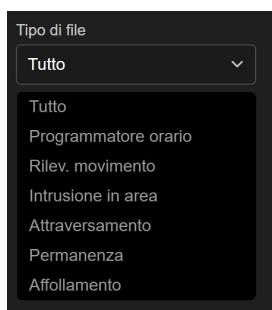
Activates the digital zoom thanks to which it is possible to draw boxes to enlarge on the image. Right click to exit.

Playback

If the camera has an SD card slot you can insert a micro SD memory to record. You can review recordings in the PLAYBACK section



- 1 – CALENDAR Choose the date you want to search at the top right
- 2 – START/END TIME Choose a time slot that interests you, setting the start and end time
- 3 – TYPE OF FILE Choose the type of video file you intend to search for. This depends on how you set up camera recording to the SD:



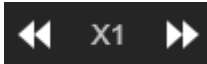
ALL searches for all recordings, TIME PROGRAMMER searches for the programmed continuous recording, DETECT. MOTION searches for motion detection recordings while the remaining options refer to videos recorded for human and intelligent detection. .

- 4 – Press the search button and if there are recordings you will see the timeline at the bottom turn green (continuous recording) or yellow (motion detection recording) or

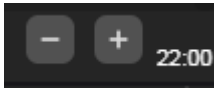
light blue (intelligent human detection recording)



You can drag the timeline to review the moment you like and use the play button to start playback. With the progress arrows you can switch to accelerated viewing and return to normal viewing.



At the end of the timeline there are two buttons (+/-) with which you can zoom the timeline for greater precision in movements



These buttons are also available



Activates the digital zoom thanks to which it is possible to draw boxes to enlarge on the image. Right click to exit.



Take and save a photo. By pressing the button **TAKE A PICTURE** the frame is saved on the PC that is being seen at that moment. The image is automatically saved in JPG format in the native resolution of the video stream.



Download the video. By pressing this button you can consult the list of video files contained in the SD card and download them



Enable audio. Enable audio playback, if present in the recording.

CONFIGURATION MANUAL

RK SERIES - ONVIF IP CAMERAS (GUI vers. 6.0)

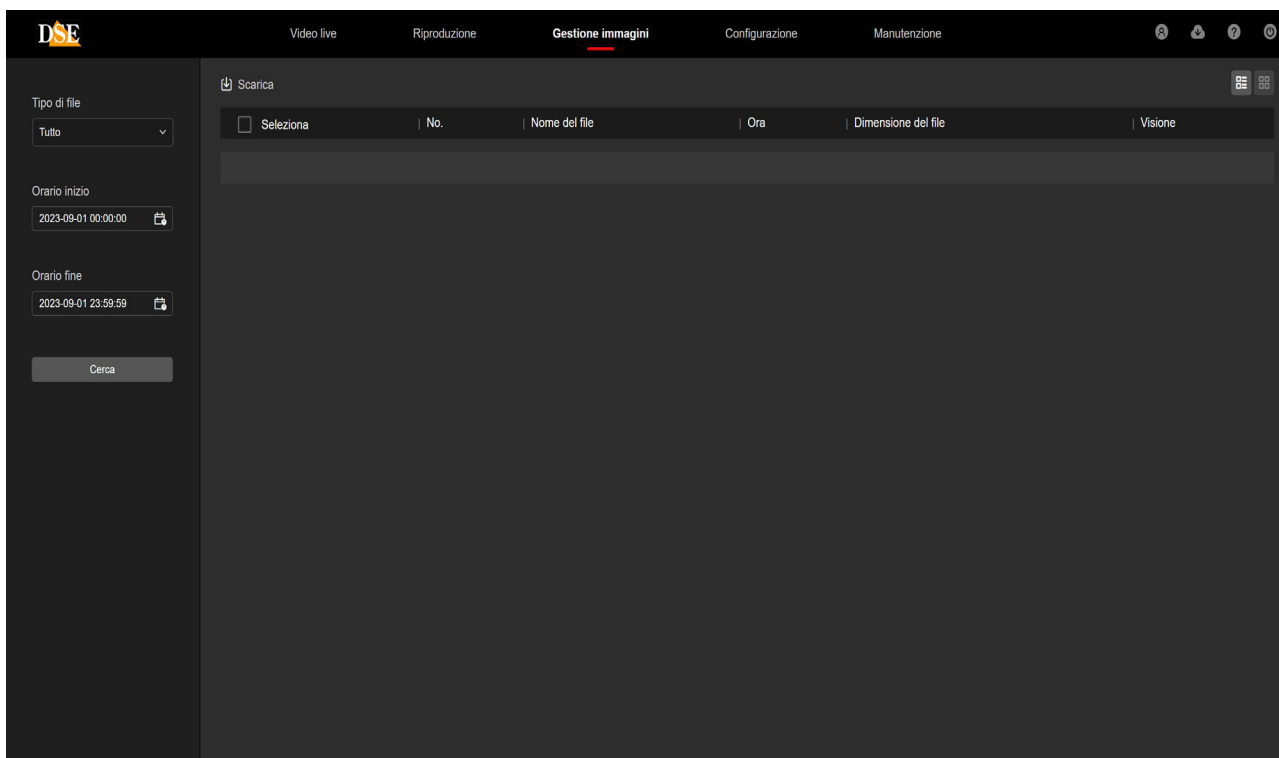


Page:10

A screenshot of a web-based file management interface. The interface is dark-themed. On the left side, there are three filter sections: 'Tipo di file' with a dropdown menu set to 'Tutto', 'Orario inizio' with a date and time input field showing '2023-03-08 00:00:00', and 'Orario fine' with a date and time input field showing '2023-03-08 23:59:59'. Below these is a 'Cerca' button. The main area on the right is a table with a header row containing a 'Scarica' icon, a checkbox, and columns for 'No.', 'Nome del file', 'Ora di inizio', 'Ora di fine', 'Dimensione del file', and 'In corso'. The table body is currently empty.

Image management

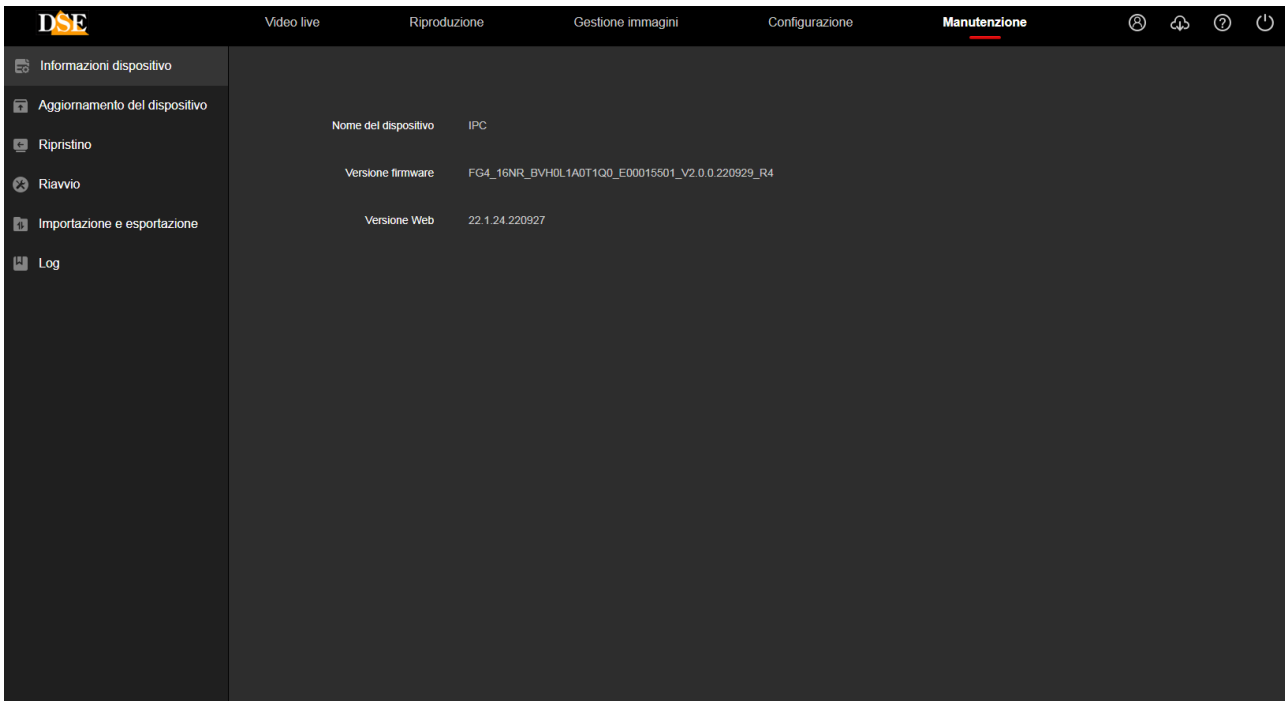
If the camera has an SD card slot you can also save photos. You can review the saved photos in the IMAGE MANAGEMENT section



You can search for images saved in the camera's memory as seen in the previous chapter for videos.

Maintenance

In this section update and reset operations are carried out



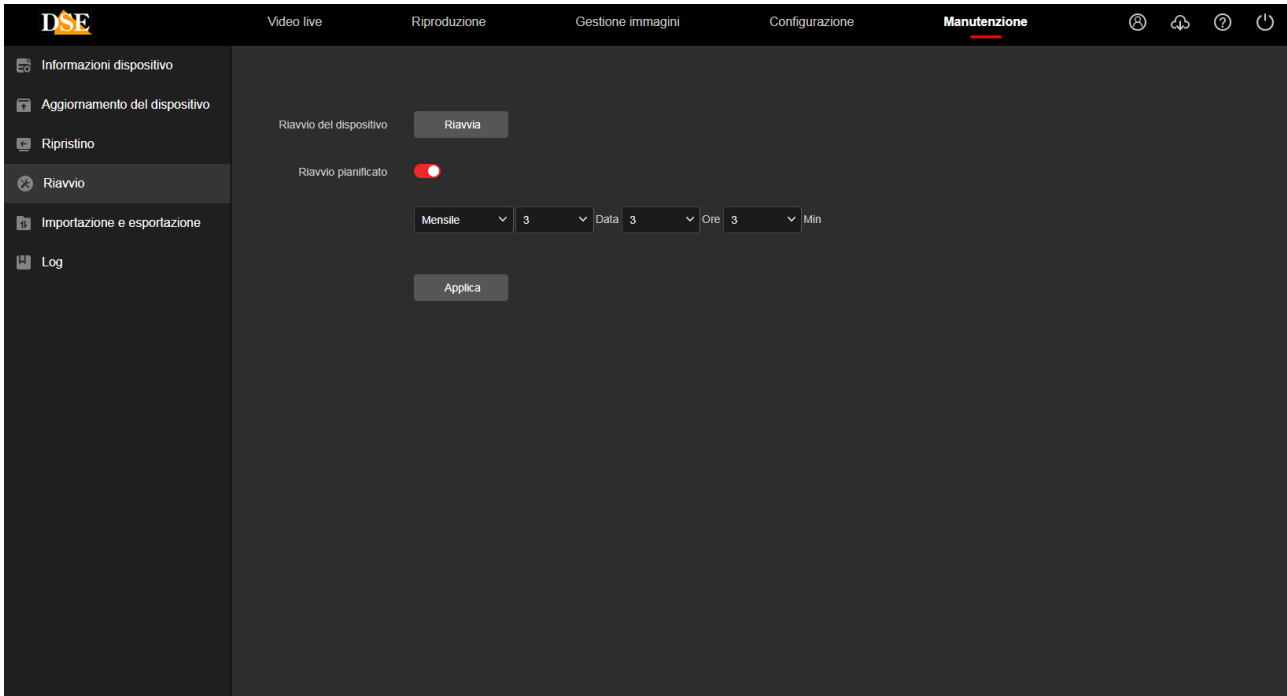
DEVICE INFORMATION–This window shows the camera data and particularly the internal firmware version

DEVICE UPDATE–Allows you to search for the camera firmware update file and upload it to the camera with the UPDATE button. This operation must be carried out only upon instruction from our technical office.

Please remember that loading non-original firmware onto the device may make it unusable and will void the warranty. **RESTORATION**–Clear all user configurations and return the camera to factory settings. It is possible to do a total reset or preserve the network settings.

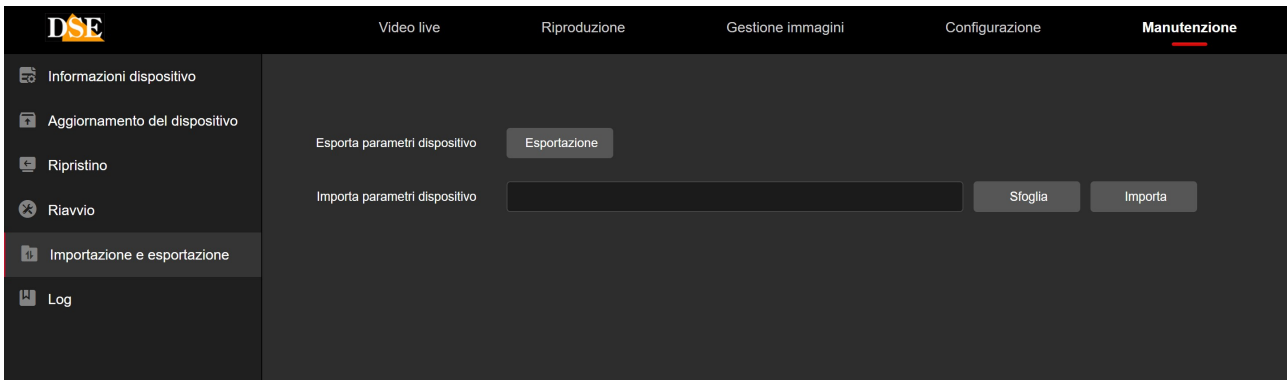
RESTART THE DEVICE–Press the button to restart the equipment. SCHEDULED RESTART – It is possible to schedule a periodic restart of the camera on a daily, weekly or monthly basis.

RESTART THE DEVICE–Press the button to restart the equipment. SCHEDULED RESTART – It is possible to schedule a periodic restart of the camera on a daily, weekly or monthly basis.



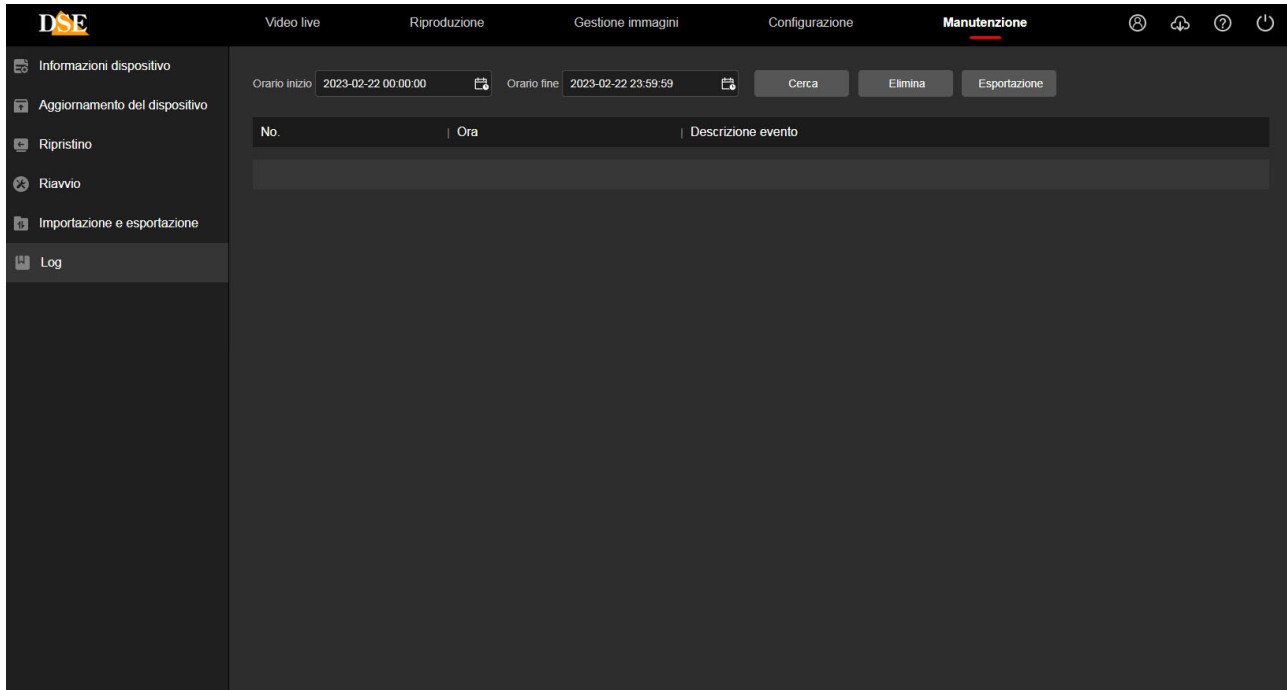
IMPORT AND EXPORT

In this section you can export the entire camera configuration to a file that is saved on the local PC. If you have previously saved a configuration you can reload it into the camera with the IMPORT button



LOG

In this window it is possible to search for events recorded in the camera's memory on a time basis.



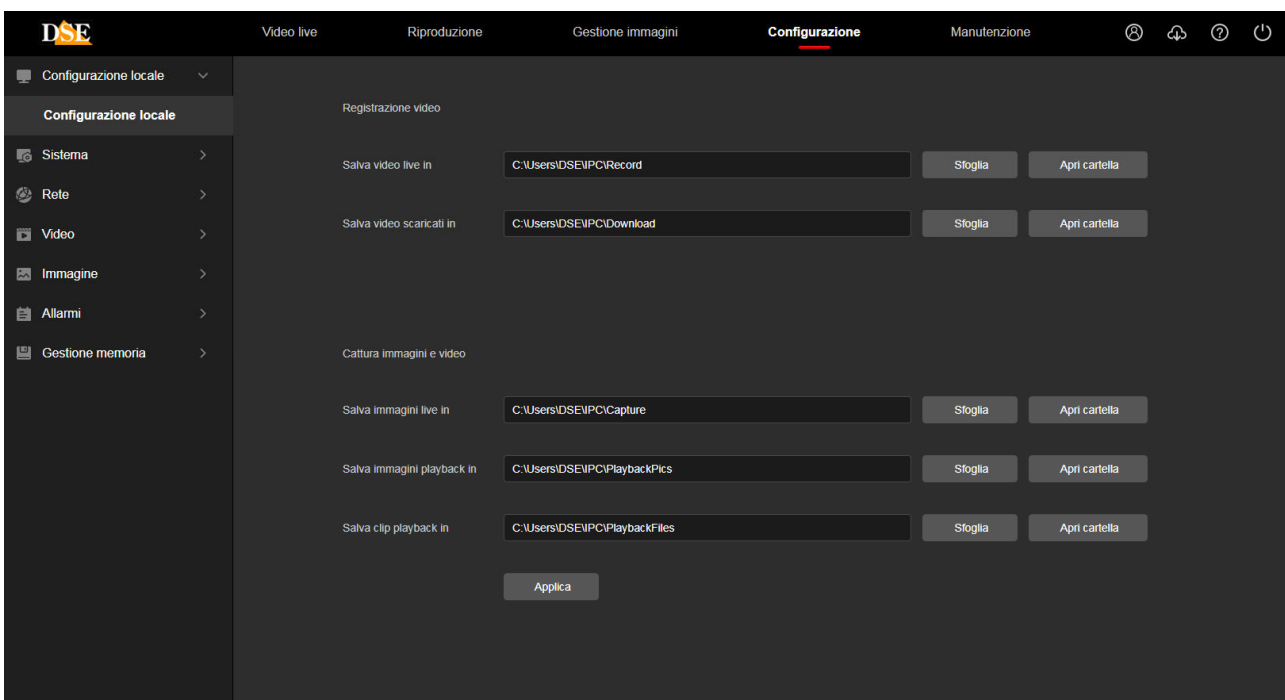
It is possible to export events in TXT format.



Configuration

All the camera options configuration pages are collected in the CONFIGURATION section.

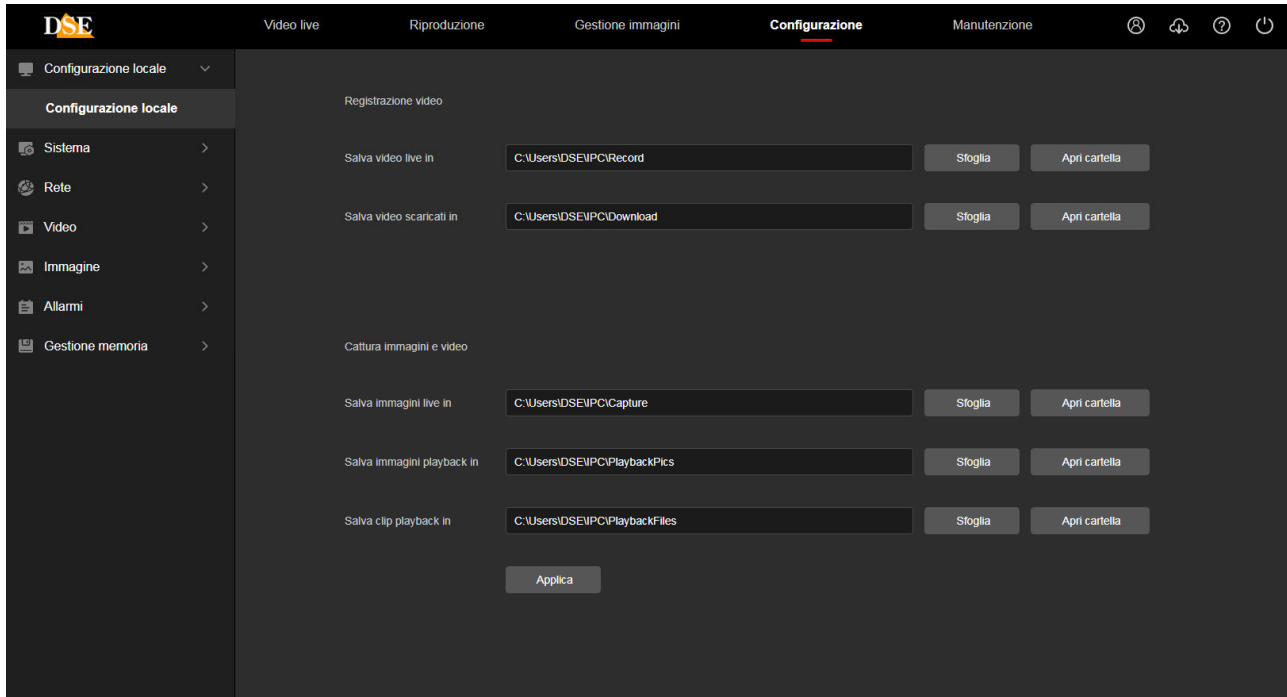
Below in this chapter we will analyze all the options found in these folders one by one. The options are the same for all RK series cameras, with small variations based on the specific features and functions of the individual models.





LOCAL CONFIGURATION

In this section you set the saving folders that the browser uses to save files on the local computer



SAVE VIDEO LIVE IN–Choose in which folder to save the video files recorded live with the browser **SAVE DOWNLOADED VIDEOS TO**–Choose in which folder to save the video files downloaded from the camera memory.

SAVE LIVE IMAGES IN–Choose in which folder to save the photos taken live with the browser **SAVE IMAGES PLAYBACK IN**–Choose in which folder to save photos taken during playback

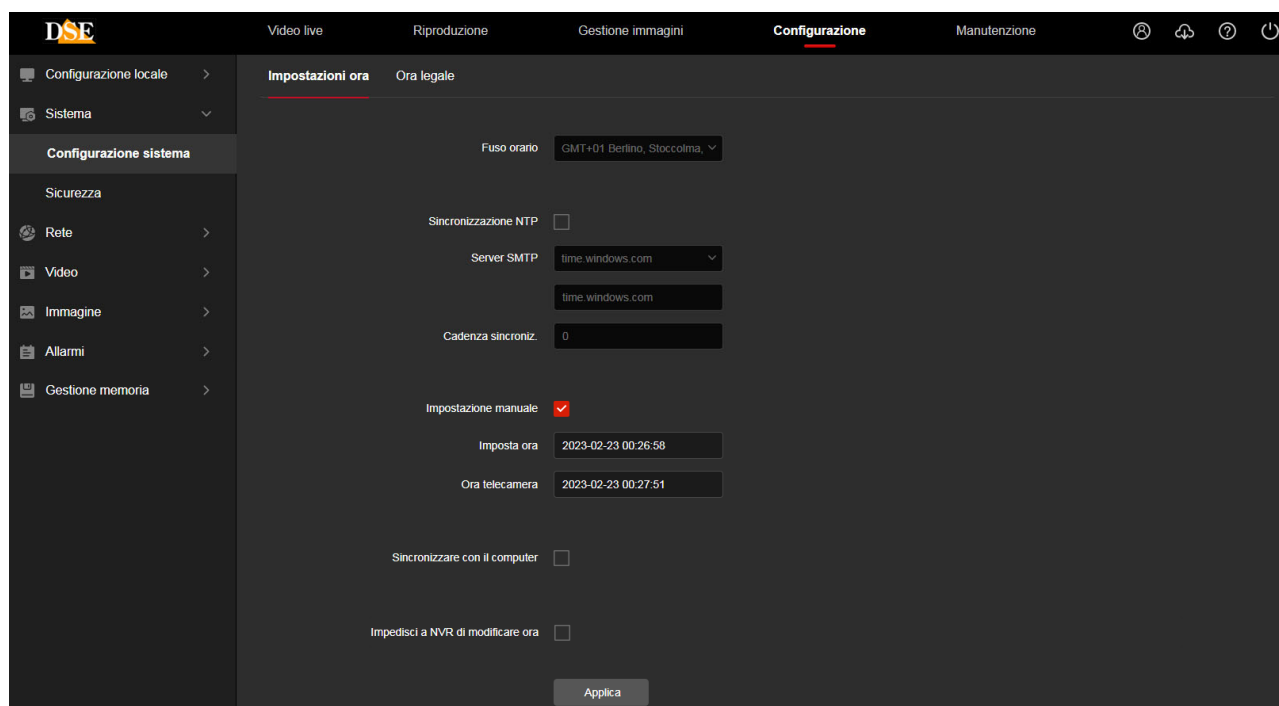
SAVE CLIP PLAYBACK IN–Choose in which folder to save recorded videos during playback

ATTENTION

If you encounter incorrect operation when setting these folders, check that you have run the browser as administrator.

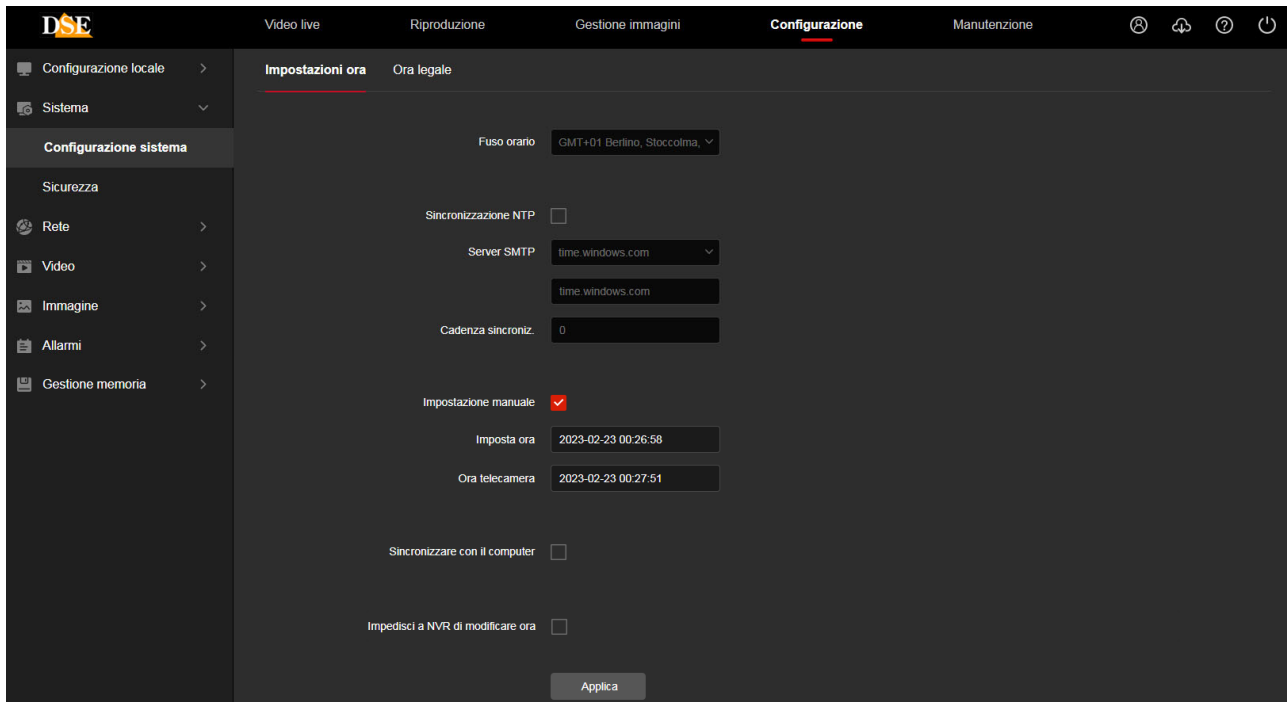
SYSTEM

This section of the configuration contains general system options. Contains 2 subsections.



SETTINGS TIME

In this section you set the date and time of the camera which is eventually shown as an overlay and is necessary for the correct functioning of various functions.



The cameras support 3 types of settings: Automatic synchronization from NTP Server via web, Manual setting, Synchronization with computer

JET LAG–Select the reference time zone. For Italy GMT+1. **NOW CAMERA**–Displays the current date and time stored in the camera **NTP SYNCHRONIZATION**–By selecting this option it is possible to have the camera automatically synchronize the time and date via the internet with an NTP (Network Time Protocol) server chosen from those available in the list. This is a very valid option because it allows you to always keep the time correct. For synchronization to occur, the network to which the camera is connected must have Internet access and the gateway (usually the router address xxxx.1) and the DNS server (recommended Google 8.8.8.8). For the time to synchronize correctly it is also important to set your daylight saving time (DST) and time zone as described below. There are several NTP servers available, among the most used, if necessary it is possible to choose CUSTOMIZE and set a different NTP server. NTP synchronization cannot be used if the camera does not have direct access to the Internet, for example when it is connected to the POE ports of an NVR.

MANUAL SETTING–By selecting this option you can set the time and date manually and transfer them to the camera by pressing SAVE. However, consider that IP cameras do not have an internal battery and are not able to preserve the date and time if they are disconnected from the network. For this reason, if you choose this option it is best that the camera never loses power by providing a backup system for the system.

SYNCHRONIZE WITH PC TIME–By selecting this option the camera synchronizes

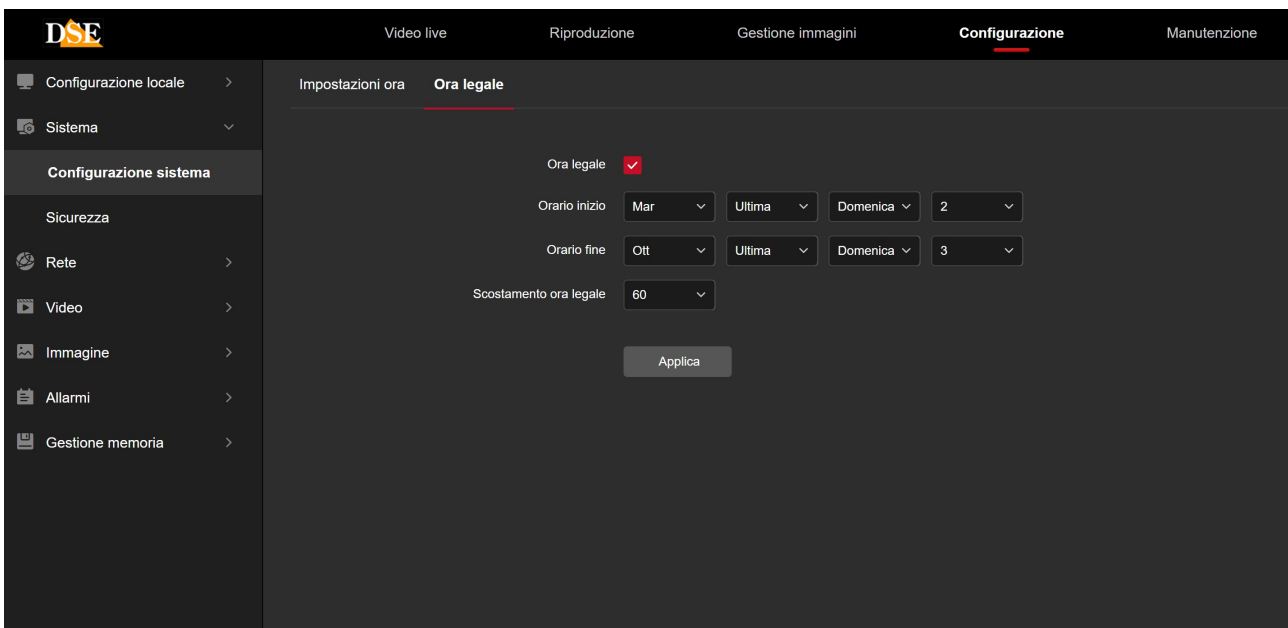


automatically the date and time with your computer. Furthermore, if you use this option, in the event of a blackout the camera will automatically update the time by querying an NVR on the network. This is a great setting to use in a network with NVR.

PREVENT NVR FROM CHANGING NOW—NVRs are able to change the cameras' time remotely to synchronize with their own. Generally this function is very convenient for automatically updating all the cameras in the system together and not having to set each camera individually. With this option you can prevent the NVR from changing the time if for some reason you want to avoid it.

DAYLIGHT TIME SETTINGS

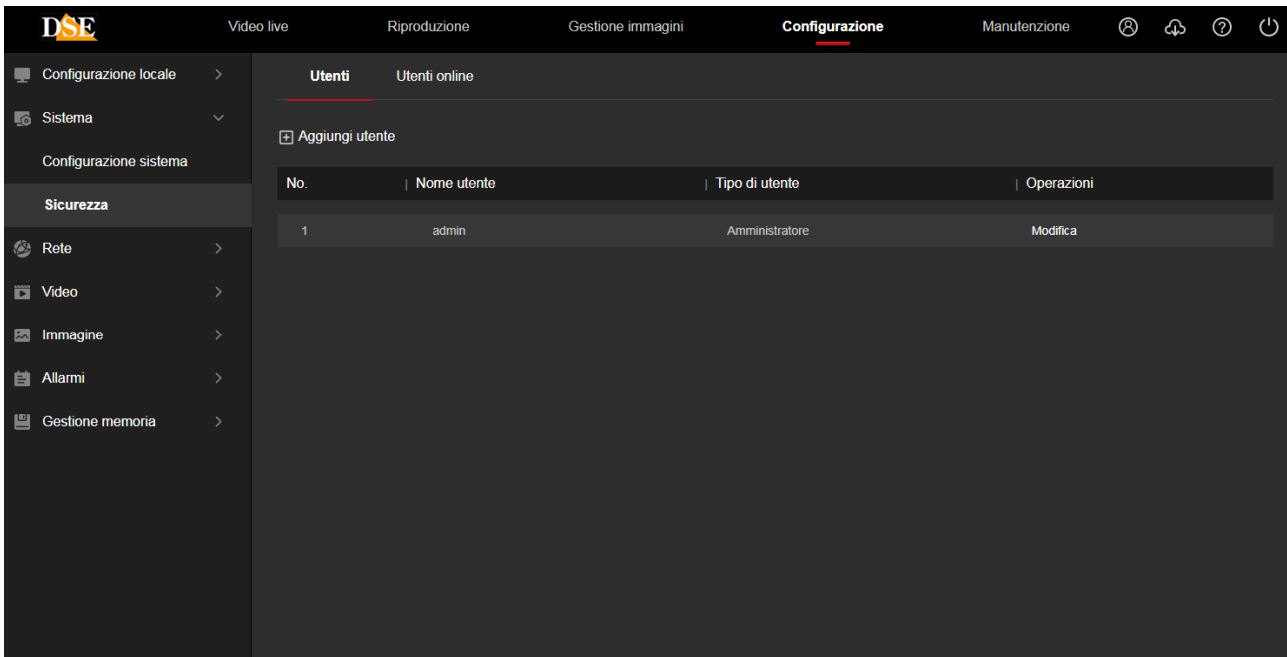
In this section you make the setting for automatic switching to daylight saving time. It is important to set this section correctly for various functions to work. The settings for Italy are shown in the figure



SAFETY

In this section you configure the camera access passwords and set security functions

USERS



Each camera is able to recognize up to 16 different users. It is possible to insert new users with the ADD USER button. Each user must be assigned an access level which can be: **ADMINISTRATOR**–Access to all functions

OPERATOR–Access to all functions except user setup **USER**–Access to LIVE viewing and PTZ control only, access to other functions is inhibited.

ONLINE USERS

This window shows all users who are currently accessing the camera remotely. The list includes IP address and connection start.

SECURITY SERVICES

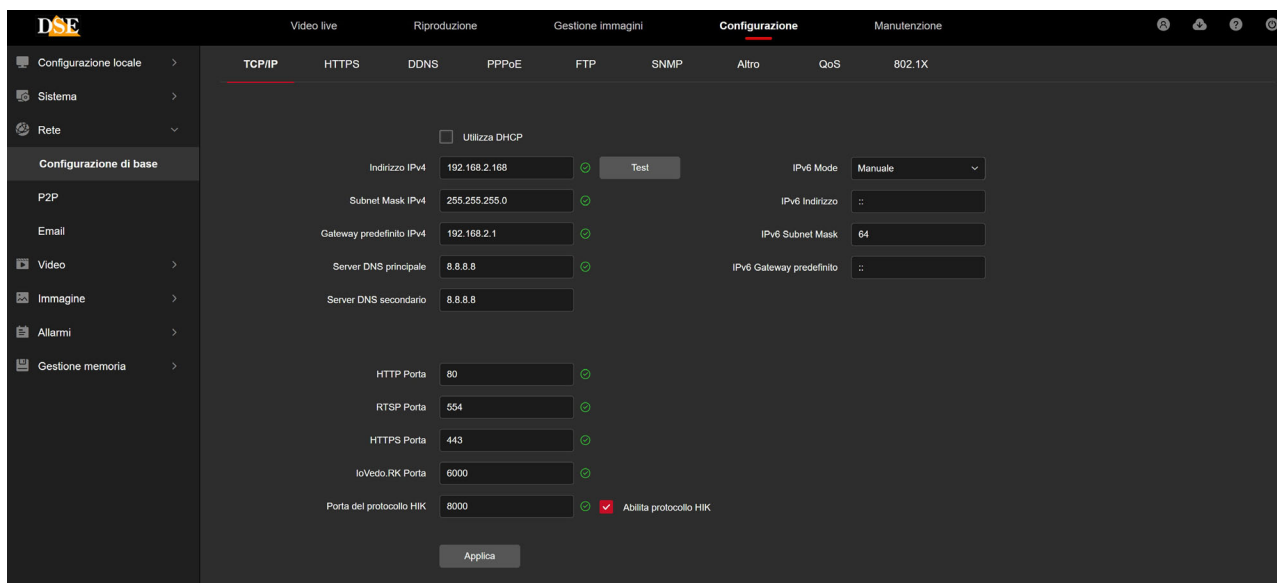
Here you can set the camera to lock after a programmable number of login attempts with an incorrect password.

NET

This section is made up of several sections that deal with the camera's network interface

TCP/IP

Here you set the basic parameters for network communication.



Generally these parameters are programmed during the installation phase with the IPTool.RK program. In this window it is possible to modify them if necessary, making sure to do so consciously as modifying these settings normally leads to having to also adapt the client devices in order to maintain the connection.

The cameras support both manual IP address assignment and automatic assignment by a DHCP server on the network. The latter is certainly the most convenient, but is generally not used in IP CCTV systems because it could cause the camera address to change over time.

IP ADDRESS/SUBNETMASK/GATEWAY: These are the classic parameters that allow the device to communicate with its network. Normally these parameters are assigned during installation with the IPTool.RK software as illustrated in the installation manual. If the data is entered manually, the camera must share the first 3 numbers of the IP address with the rest of the network (e.g. 192.168.0.xxx) and also the subnet mask (usually 255.255.255.0). The gateway is the IP address of the device that allows access to the Internet, usually a router and is almost always number 1 on the network (e.g. 192.168.0.1)

DNS–It is the DNS server address that allows the camera to interpret website addresses. If this address is invalid the camera cannot contact websites such as our P2P server or NTP time server.



You can enter the DNS server address of your Internet Service Provider (ISP) or other online DNS servers such as Google's (8.8.8.8).

TEST–If you enter a new IP address for the camera you can, with the TEST button, verify that it is available and not used by other devices on the network.

BRINGS

Here you can modify, if necessary, the communication ports that the camera uses in the network dialogue.

HTTP PORT–It is the port used by the camera to connect to browsers. The default port 80 is the one used by browsers normally if you do not specify a different port. If you change this port it will be necessary to indicate the new port in the browser address bar at each connection. For example, to connect to the address 192.168.2.120 on port 72 you will have to call `http://192.168.2.120:72`

RTSP PORT: It is the port used for video streaming with RTSP protocol towards clients such as VLC, REALPLAYER etc. Factory: 554

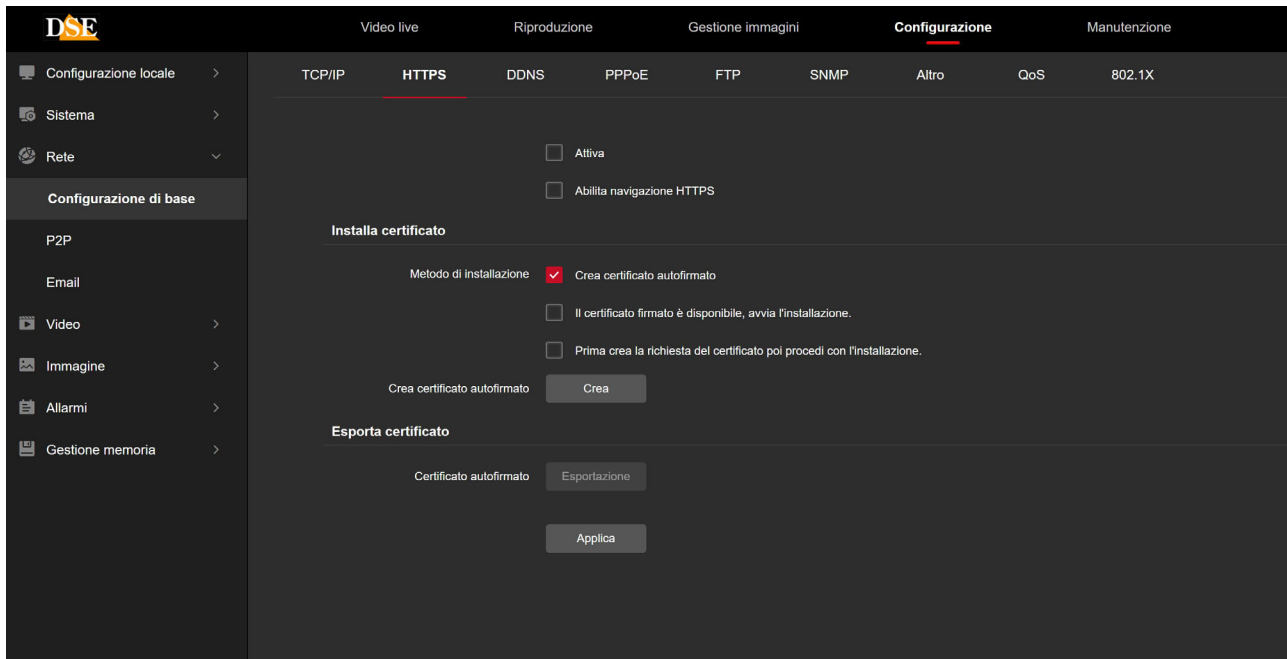
HTTPS PORT–This port is used in encrypted security communications with the https protocol

DOOR IOVEDO.RK–The port used for dialogue with the mobile app. Factory 6000, it is advisable not to modify it.

HIK PROTOCOL HOLDER–The camera also supports the native Hikvision protocol for dialogue with this brand of NVR. Here you can enable the protocol and set its port.

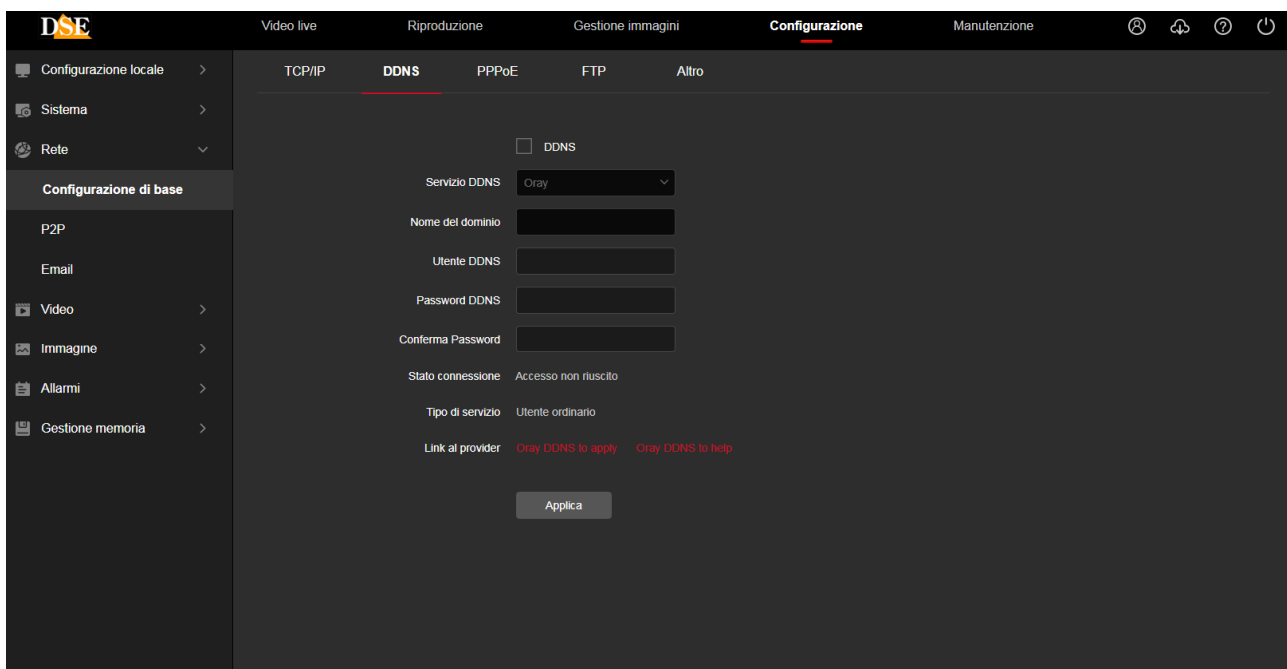
IPv6 settings are typically not used

HTTPS



The cameras support the https encrypted protocol. The https protocol is required in applications with a high level of security. To use the https protocol the user must have an SSL certificate whose data is entered on this page. This function is reserved for expert personnel. We do not recommend enabling this function without the appropriate knowledge because this may make the camera unreachable.

DDNS



To connect to an IP camera via the Internet you typically use our P2P service,



which allows you to connect without static IP and without configuring the router.

If for some reason you want to access via the web, without using our P2P cloud, it would certainly be better if you had a fixed public IP address so that you always know exactly the address to connect to from the web. If you cannot obtain a static IP from your provider, all cameras in the range support DDNS (Dynamic DNS) services which allow you to continuously monitor the IP address of the equipment. These services, also available online for free, provide the user with a domain name to type into the browser. The DDNS provider redirects the communication to the IP address that the camera has at that moment.

The RK Series cameras support the most popular DDNS services and are able to periodically send the Internet IP address assigned to them to the DDNS provider.

The following parameters can be set: **ENABLE**

DDNS -Enable the service

DDNS SERVICE -DDNS service provider. The following are supported: Oray, No-IP, Dyn, Planet Dynamic DNS and Planet Easy DDNS

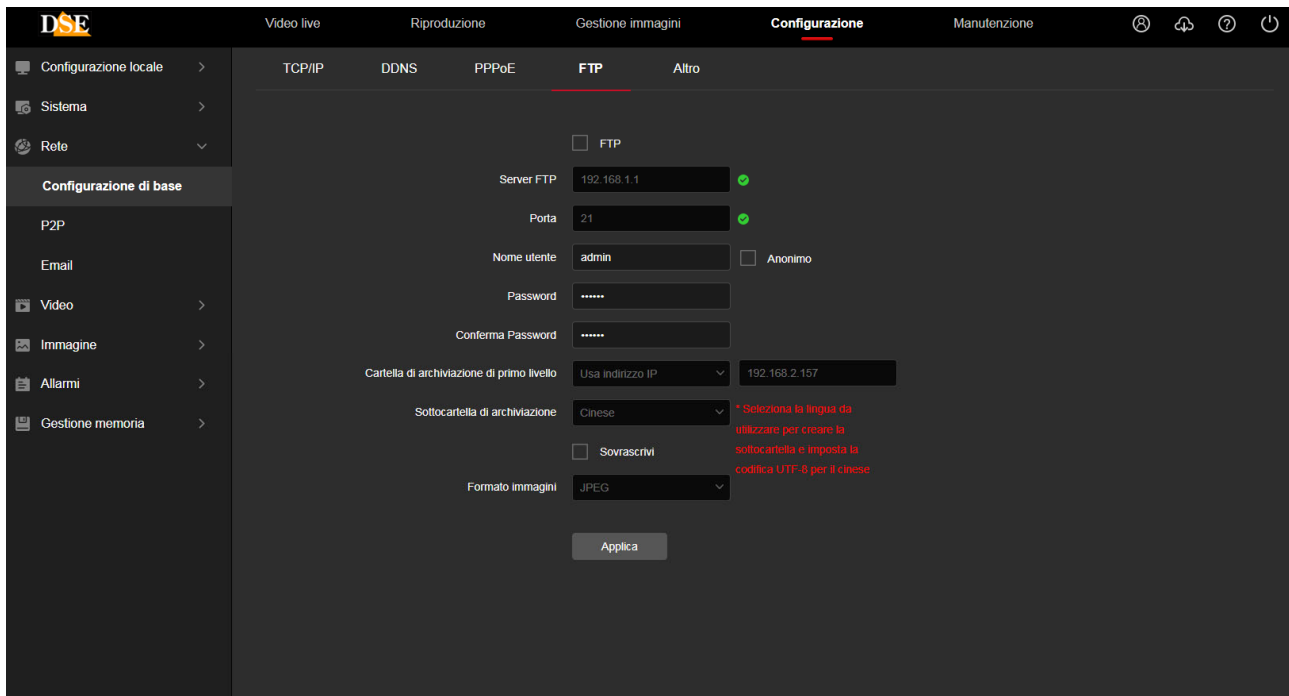
DOMAIN NAME:personal domain name that is assigned by the DDNS provider to the device

DDNS USER / PASSWORD:authentication data for access to the DDNS service provided by the DDNS provider.

We remind you that the use of DDNS is not necessary when you use the IoVedo.RK P2P cloud server, the use of which is free as it is included with the camera, as illustrated in the installation manual. The connection with the P2P server, unlike DDNS, does not require mapping of the router ports.



FTP



RK cameras can upload images or videos to a website via the FTP protocol following an event generated by motion detection or intelligent detections. **FTP SERVER**–FTP server address **BRINGS**–FTP communication port (typically 21)

USERNAME/PASSWORD–FTP server login credentials

ARCH. FOLDER FIRST LEVEL–Server folder where to upload files. You can choose to automatically name the folder using the camera's IP or on-screen overlay, or you can customize a name to your liking.

STORAGE SUB-FOLDER–Other automatic subfolders are created within the top level folder to divide the files. Choose English language to name them. **OVERWRITE**–Allows you to overwrite older files once the available space on the ftp server has run out

IMAGE FORMAT–Allows you to choose the format of the files to upload via FTP. As a rule, only JPG is available

TEST–With the test button you can check whether access to the FTP server occurs correctly with the set parameters.

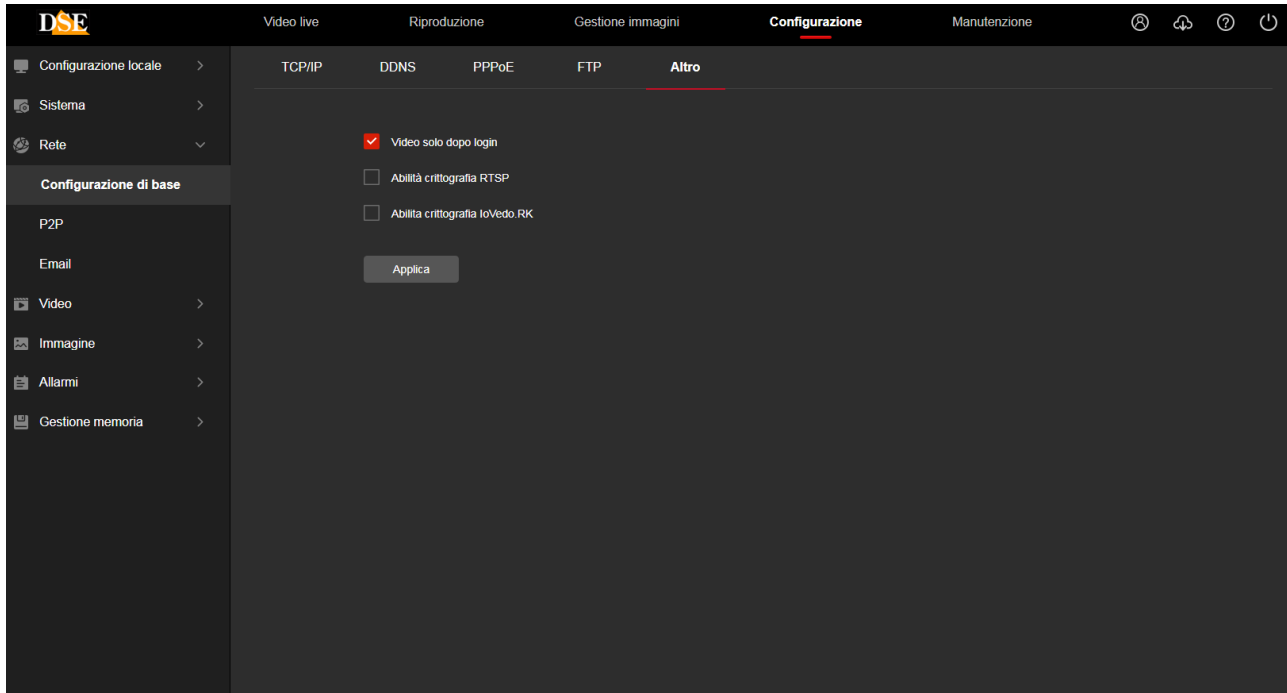
SNMP

The cameras support SNMP (Simple Network Management Protocol) for networks that use this device management protocol. In this window you can enter data relating to this protocol. Most networks do not use this protocol, in which



case you can ignore this function and leave the protocol disabled so as not to consume resources unnecessarily.

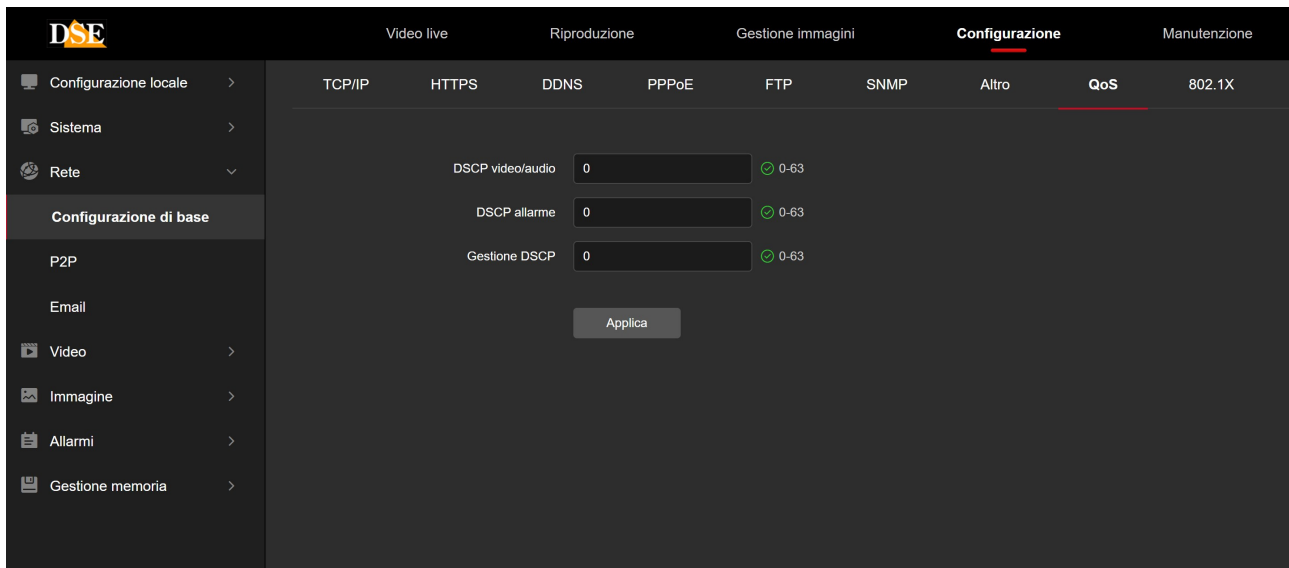
OTHER



VIDEO ONLY AFTER LOGIN-This setting refers to accessing the camera via RTSP with a client such as VLC (see installation manual). If you disable this option the client will be able to receive video streaming without having to enter login credentials. **ENABLE RTSP and IOVEDO.RK ENCRYPTION**-For high-risk applications you can enable encrypted communication of video streaming to clients (RTSP) and communication with the IoVedo.RK app.

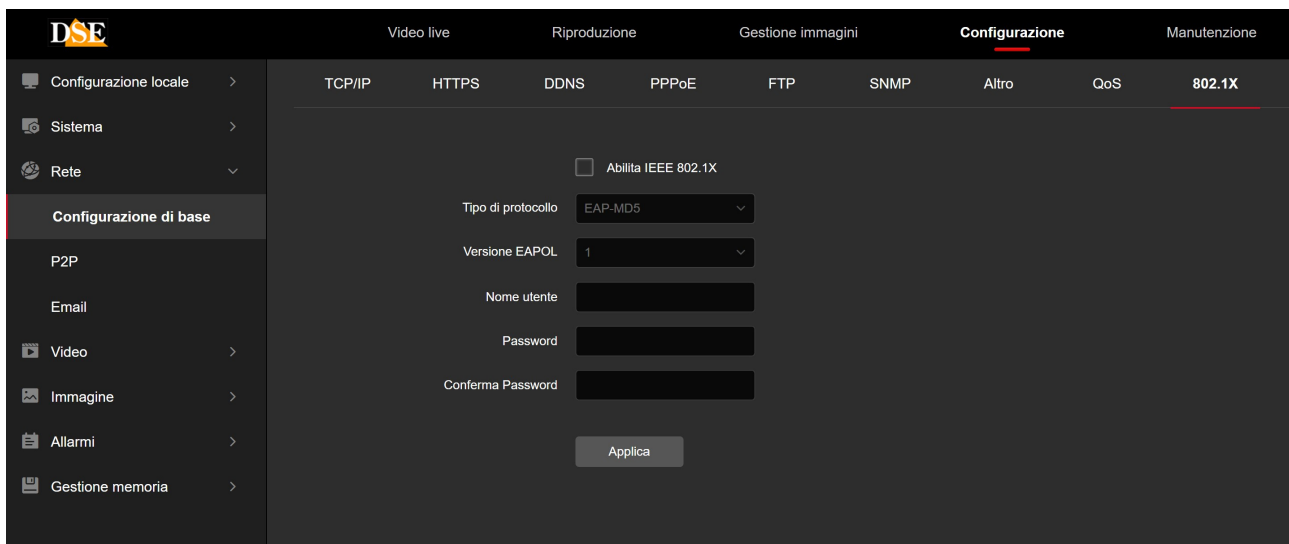
QOS

The cameras support the QOS (quality of service) network error control protocol. This is a feature that is only useful for large systems with hundreds of cameras. If this is not your case, keep all parameters at the factory setting of 0. The majority of networks do not use this protocol, in which case you can ignore this function and leave the protocol disabled so as not to consume resources unnecessarily.

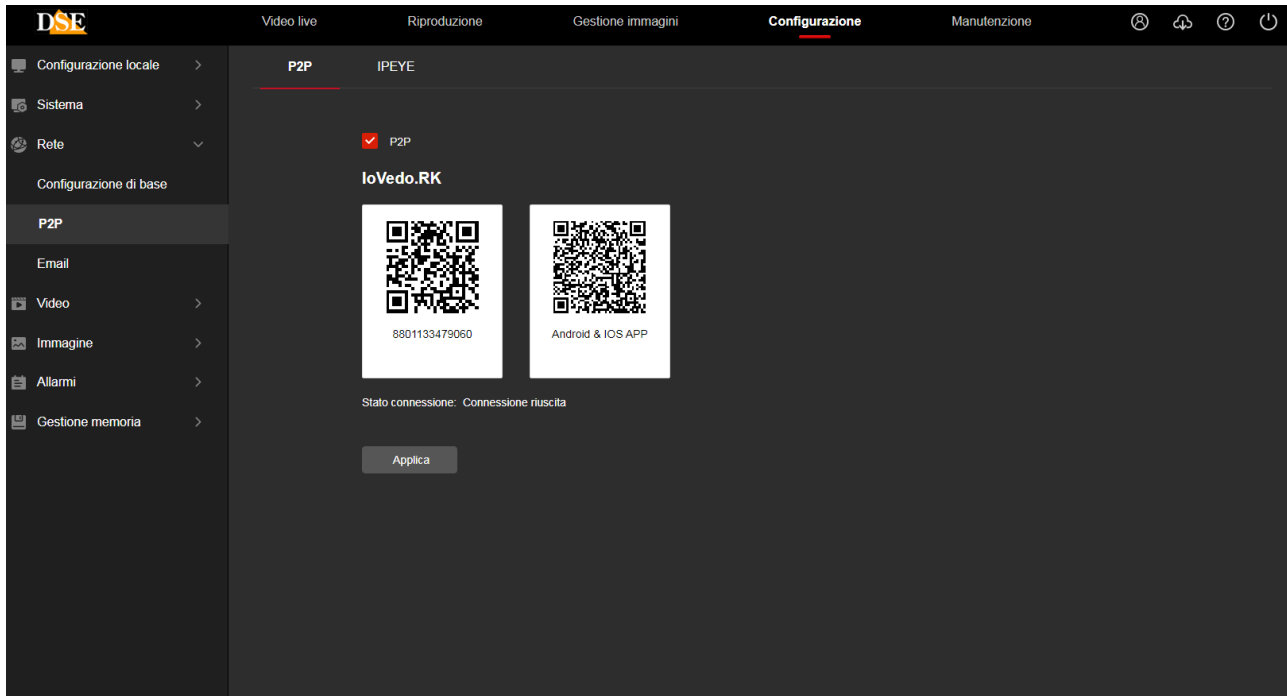


802.1X

The cameras support the 802.1x protocol which is used by some high security networks where connecting devices must authenticate themselves eliminating the risk of unauthorized access. Here you can enter the authentication protocol (EAP-MD5 and EAP-LEAP supported) and EAPOL version. Most networks do not use this protocol, in which case you can ignore this feature and leave the protocol disabled to avoid consuming resources unnecessarily.



P2P



This function must be enabled if you wish to access the camera via web using our P2P cloud server as illustrated in the IoVedo.RK app manual for REMOTE ACCESS. Remote access directly to the camera is normally used when you don't have an NVR.

The first QR code on the left shows the SERIAL NUMBER of the camera which is already registered on our server and which you can also find on the camera label and on the packaging. The second QR code, on the right, allows you to download our IoVedo.RK application.

Download the IoVedo.RK app manual to learn how to use P2P login data with the app. In this window the entry is particularly important:

CONNECTION STATUS which should show Connection Successful

Only with a successful connection can you proceed to use the IoVedo.RK app or software to access remotely. Otherwise, if you find Connection failed or Offline you must review the network connection to the router or the camera's TCP/IP settings because the camera is not communicating correctly with the Internet.



E-MAIL

| Field | Value | Action |
|--------------------------|-----------------|--------|
| Indirizzo mittente | User@domain.com | |
| Indirizzo Server | SMTP.domain.com | |
| Porta | 25 | |
| Invio E-mail | MESSAGE | |
| Tipo di crittografia | Nessuno | |
| Nome utente | User@domain.com | |
| Password | ***** | |
| Conferma Password | ***** | |
| Indirizzo destinatario 1 | User@domain.com | Test |
| Indirizzo destinatario 2 | | Test |
| Indirizzo destinatario 3 | | Test |

Applica

RK cameras can send alarm EMAIL following an event generated by motion detection, intelligent detections or other technical situations and also attach a photo. To use email sending you must have an SMTP provider to use for email and you must know the correct connection details to access the server. You can use your Internet provider's server or sign up for a free account, for example with libero.it or email.it **SENDER ADDRESS** -the sender address that will appear in the email sent from the camera. **SMTP SERVER**-Name of the SMTP server that is used for sending email. **BRINGS** -Port used by the SMTP server

SEND EMAIL-You can choose to send a single text message via email, or attach a JPEG photo.

TYPE OF ENCRYPTION-You can choose the one used by your provider's server **USERNAME/ PASSWORD** -If the SMTP server requires authentication to send emails, you can enter the login username and password.

RECIPIENTS -It is possible to send emails to 3 recipients.

With the button**TEST**you can test a submission to see if the data you entered is correct.

Remember that if the email sending test is not successful it is not the fault of the camera but because something went wrong in the communication with the server. Try other settings or other SMTP providers that you can subscribe to for free online.

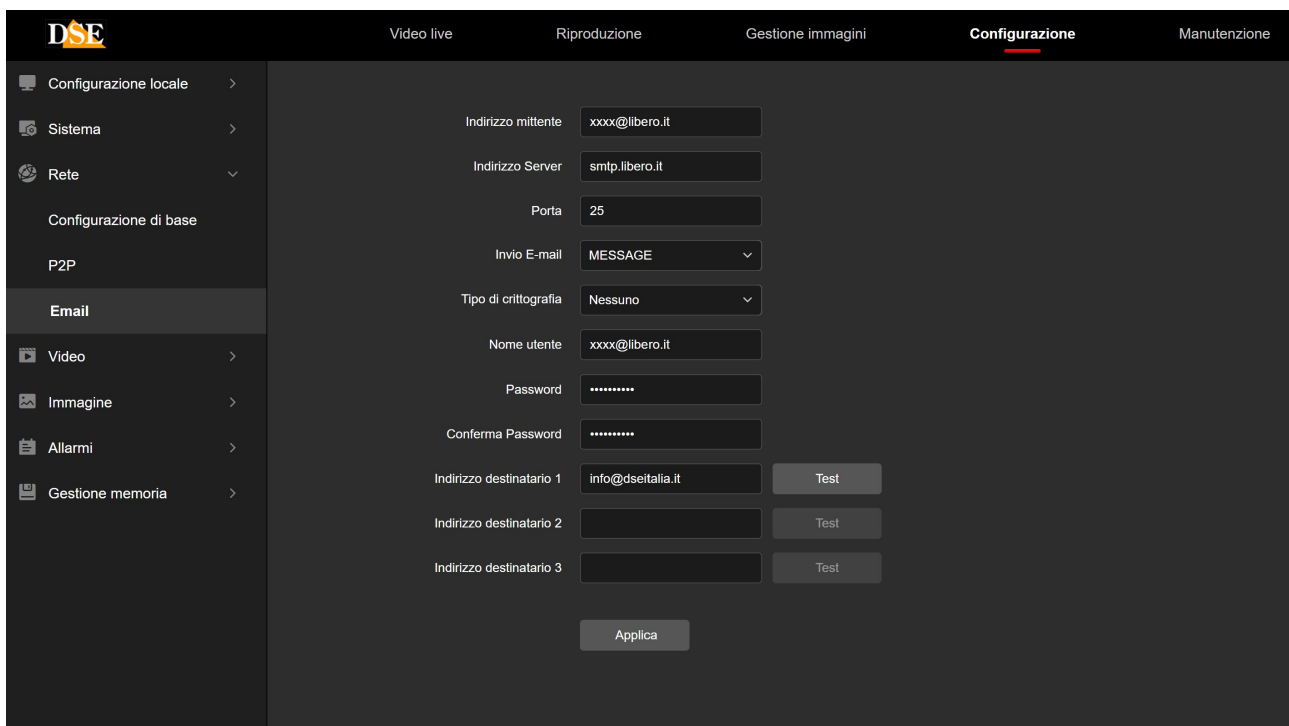
EXAMPLE WITH LIBERO.IT

To send emails, for example, you can sign up for an account with LIBERO.IT and use their SMTP server without encryption on port 25

The settings are as follows SMTP

SERVER: smtp.libero.it PORT: 25

USER/PASSWORD: Those of your account As in this example

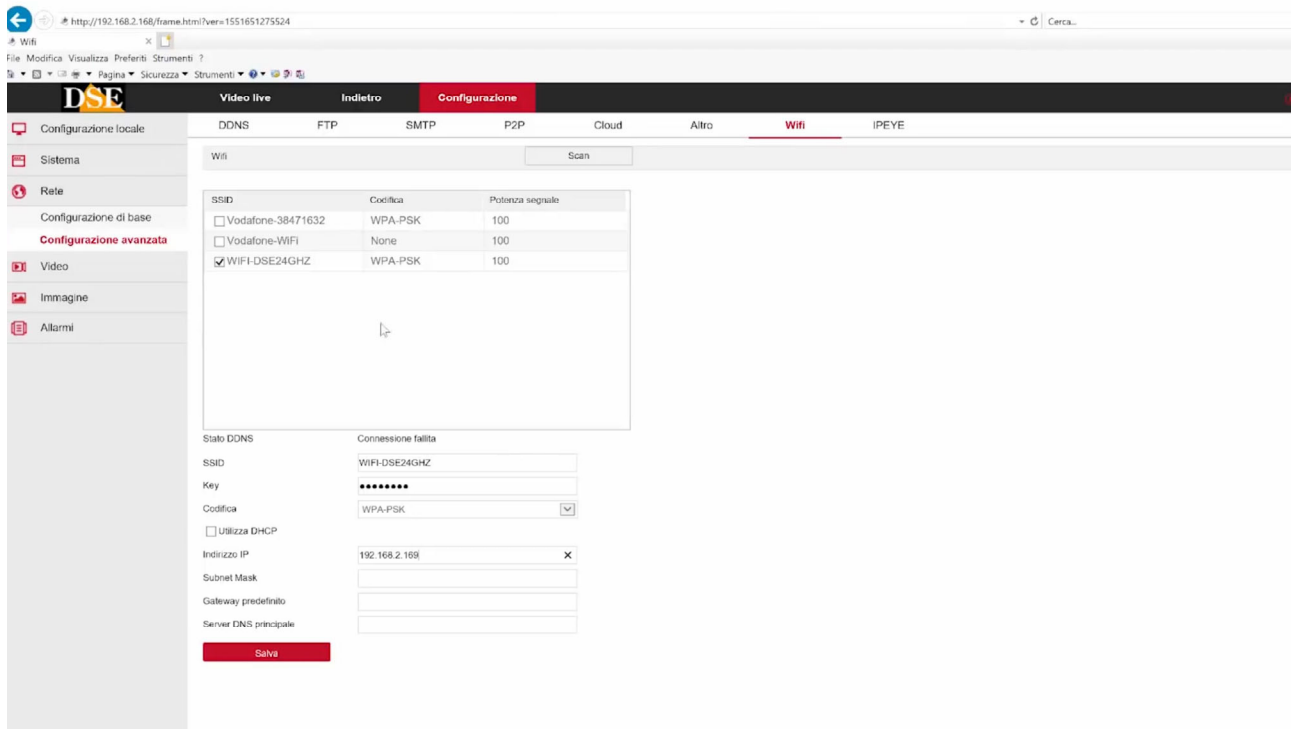


You can obviously use any SMTP server to send emails, but pay attention to their policies and any restrictions.

For example, if you want to use popular **GMAIL** you cannot simply enter the server connection data into the camera, because access would be denied. First, if you haven't already done so, you need to enable two-step verification. But then, since the NVR cannot perform two-step verification, like many other devices, you need to obtain a so-called "App Password" which you can generate in the security settings of your gmail account. Finally you need to use this app password in the NVR settings and run the test which will finally be correct.

WIFI

If your camera is equipped with WiFi, among the network configuration tabs you will also find the WiFi tab which allows you to connect the camera to a WiFi network to use it wirelessly.



SCAN – Press to search for all available wifi networks, which will appear in the table at the end of the scan. If you select a network you will see its data appear in the items below. **STATUS** – Indicates the status of the connection to the wifi network

SSID – Indicates the name of the wifi network you have selected and to which you can connect the camera

KEY – Enter the password to access the wifi network

CODING – Indicates the coding used by the WiFi network which is already presented automatically based on the scan performed

DHCP/IP – You can allow the camera to connect to the wifi network in DHCP, i.e. obtaining an automatic IP, or you can impose fixed network parameters. This last option would be advisable in a CCTV system because it gives you the certainty that the address of the WiFi camera will not change over time. However, before entering manual connection data you must check that the address you intend to give is available on the network and enter the correct subnet mask, gateway and DNS.

After pressing **SAVE** the camera will connect to the wifi network and the connection status will become **CONNECTED**. At this point you can disconnect the network cable and contact the camera on the new wifi address.

ATTENTION – On laptops with very small monitors or with an enlarged viewing scale, the **SAVE** button at the bottom of the page may not be visible. Intervene on the resolution or scale of the

CONFIGURATION MANUAL

RK SERIES - ONVIF IP CAMERAS (GUI vers. 6.0)



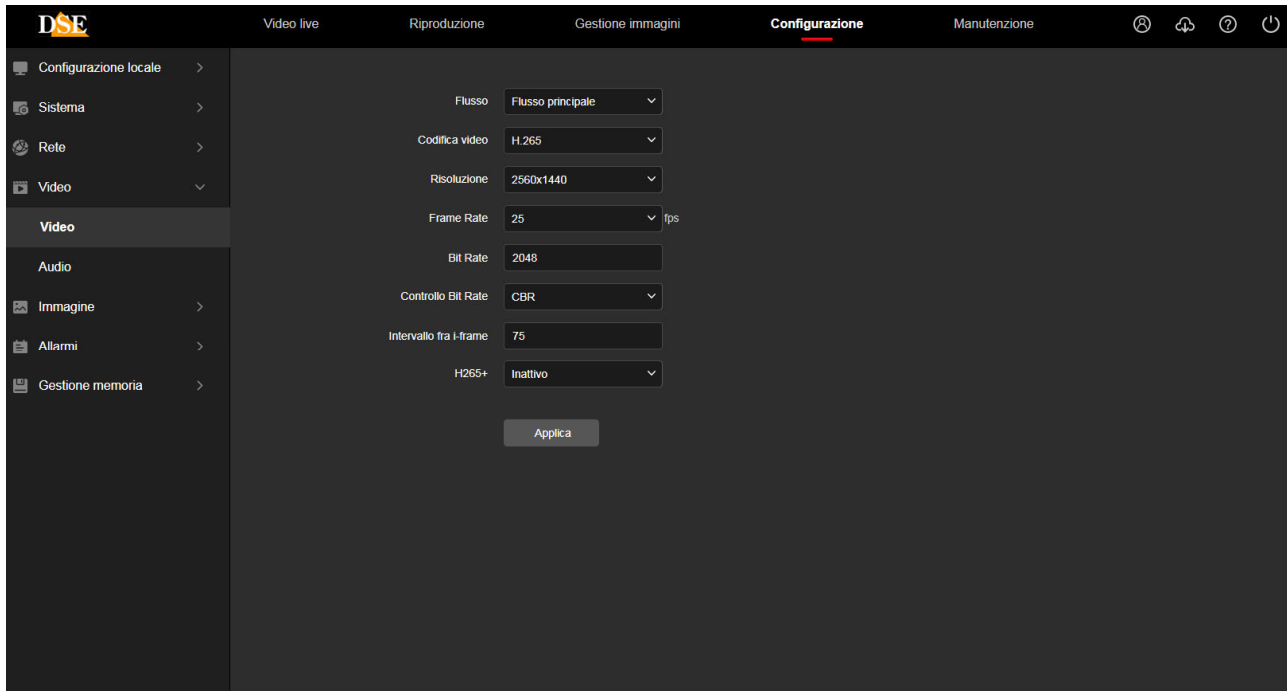
Page:32

monitor to adapt the view to the size of the window.

VIDEO

This section allows you to adjust the parameters of the camera's video and audio streaming

VIDEO



In this section you set all the parameters that regulate the video streams of the camera and that determine their severity in terms of the need for available bandwidth. This is a fundamental adjustment in the economy of a CCTV system on IP and which is often mistakenly overlooked with the result of burdening clients and obtaining long latencies (delays between action and image).

On a local network it is generally recommended to keep the factory settings. Video streaming should be kept CBR, at constant bandwidth, and set a maximum of 2000/3000 Kbps for 2-3MP cameras and 4000/5000 Kbps for 5-8MP cameras. This way you get good quality streaming and you can connect numerous cameras without introducing much latency.

FLOW-Each camera can generate up to 3 different video streams which the client can choose when connecting. In this way you can easily adapt to the bandwidth you have available and the hardware resources of the client device. For example, if we have access to the camera through a mobile connection with low bandwidth availability, or we use an old PC with a slow processor, we will choose to receive a stream with low resolution and frame rate (secondary stream).



NVRs automatically choose the primary stream for recording and full-screen viewing and the secondary stream for multi-camera viewing.

In this first box choose which video stream to configure (main, secondary, third stream)

CODING—Here you can choose the video streaming compression: H265, H264, MJPEG. You will typically use the more modern and efficient H265 compression, which is supported by all our NVRs. Switch to H264 or MJPEG if you need to connect the camera to clients that do not support H265, and instead use older H264 or MJPEG formats, such as older NVRs. **RESOLUTION**—Here you set the resolution of the selected video stream. Normally the main video streaming is set to the maximum resolution manageable by the camera, while the second and third streaming is set to a lower value which occupies less bandwidth, such as HD 1280x720.

FRAME RATE—Here you set the number of frames per second that make up the video stream (max. 25/30 – min. 1). Consider that 25 f/sec corresponds to the so-called real-time, i.e. the television standard in which the human eye does not perceive individual frames, but a single uninterrupted sequence. Generally it is also possible to reduce this parameter up to 12/15 f/sec without perceiving large differences in video fluidity and saving a lot of bandwidth. If you want to make the video streaming very light you can also set a low frame rate, from 1 to 5 for example, but you must consider that in this case the image on the client will no longer show subjects moving smoothly but in jerks

BITRATE—It represents the maximum bandwidth that the camera will occupy with its video streaming. As a rule, it is best not to exceed the value of 3000 Kbps for 2/3MP cameras and 5000 Kbps for 5/8MP cameras. Do not set too high values here because this could cause problems for the client device which will have to manage a very heavy flow. Consider that setting a very high bitrate does not mean increasing video quality but decreasing compression efficiency.

BITRATE CONTROL—This section gives the possibility to choose between two different modes of management of the occupied bandwidth: CONSTANT BIT RATE (CBR) and VARIABLE BIT RATE (VBR). In CBR mode the camera maintains a constant Bit Rate which you can set in the box above. In VBR mode, however, the camera modifies the bit rate in the various operating conditions in order to maintain constant video quality. In the majority of applications CBR management is preferable.

INTERVAL I FRAME—It is the interval between 2 consecutive Key-Frames in H.264 H.265 compression. A shorter interval corresponds to greater accuracy in the temporal position of the video but greater use of bandwidth. Normally it is recommended not to change the factory setting 75

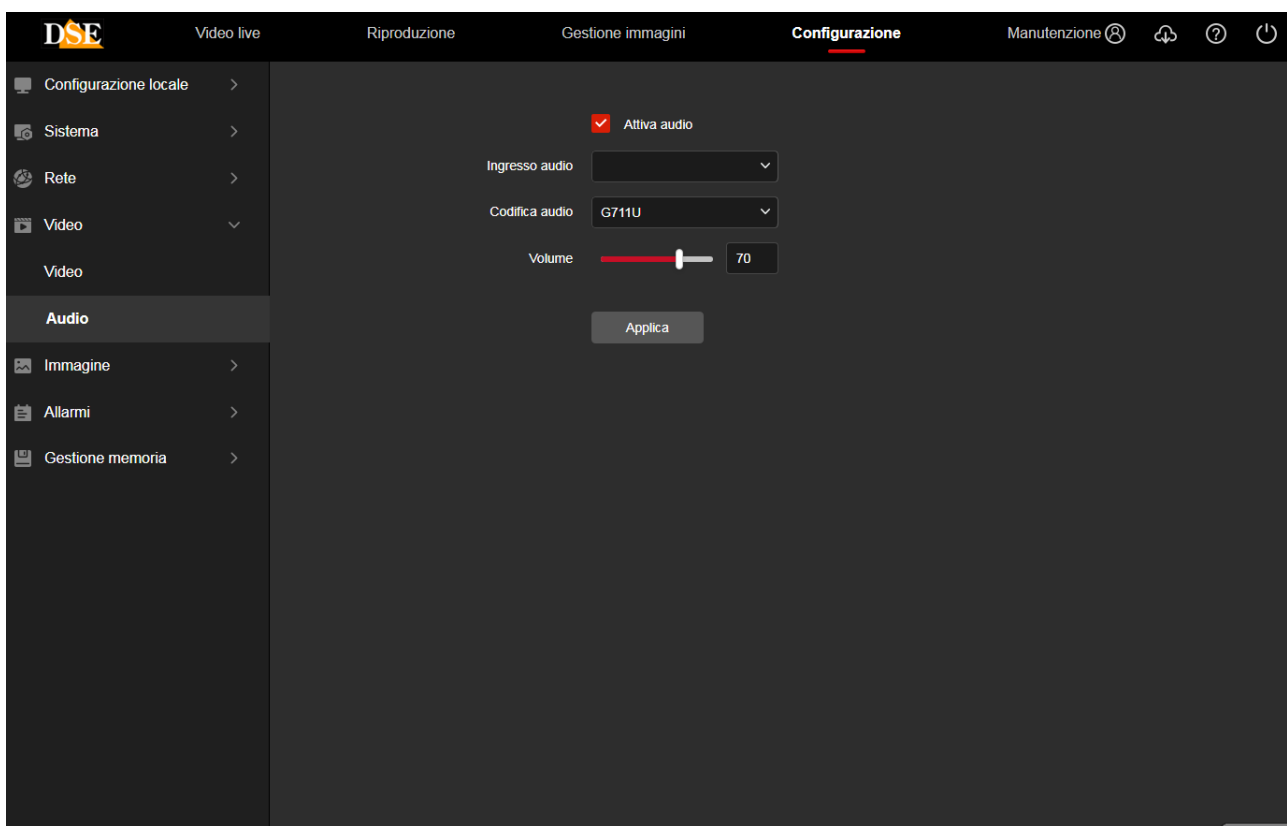
H265+—It is a further improvement of H265 compression. You can enable it for

save bandwidth, if the client supports it. All our NVRs support H265+ so you can enable this option without any problems.

WATERMARK–If you want, you can overlay text in the video stream so that its origin is certified. The overlay text is typed in the next WATERMARK TEXT box

AUDIO

Some RK series cameras support audio via a built-in microphone or an external microphone audio input.



ENABLE AUDIO–Includes audio in the video stream

AUDIO INPUT–Select the audio source to use from those available in the camera (built-in microphone or external audio input)

AUDIO CODING–Here you choose the audio compression to use: G711A, G711U or AAC. You can select the one that gives you the best audio performance on the client

VOLUME–Adjusts the gain of the audio input and consequently the volume of the audio signal.

IMAGE

This section allows you to adjust the image quality of the camera. The items available in this section can vary greatly, based on the camera model.

IMAGE

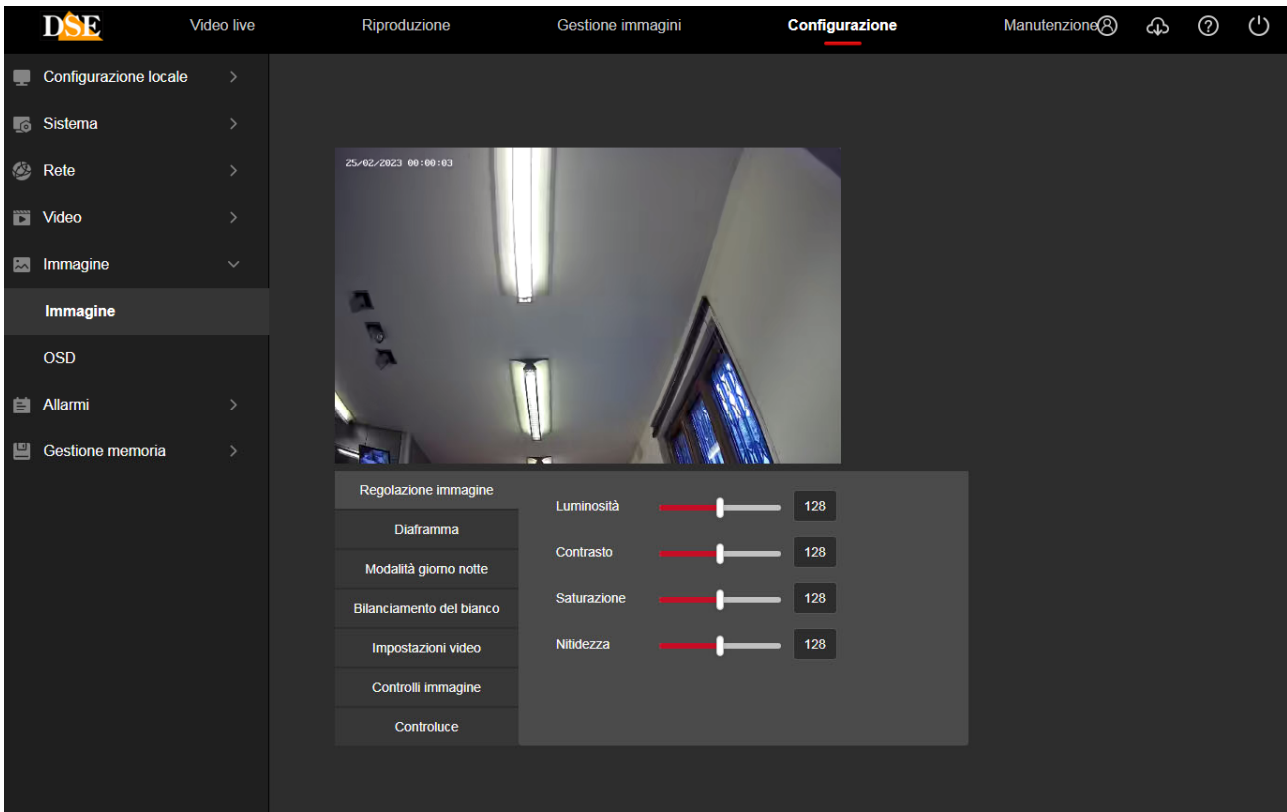
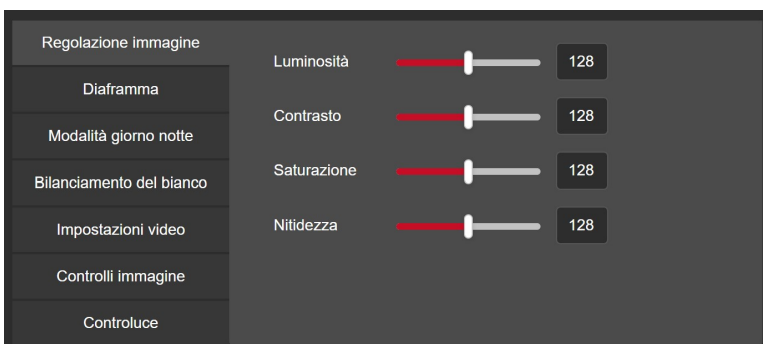
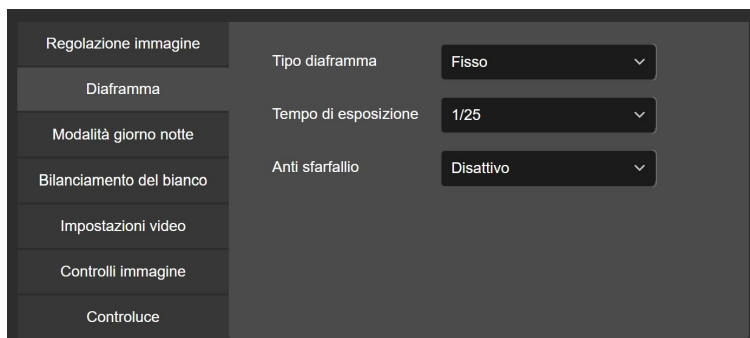


IMAGE ADJUSTMENT



Contains BRIGHTNESS / CONTRAST / SATURATION / SHARPNESS adjustments – They directly adjust the camera image allowing you to compensate for any non-optimal situations. You can see the effects of the adjustments in the preview.

SHUTTER DIAPHRAGM

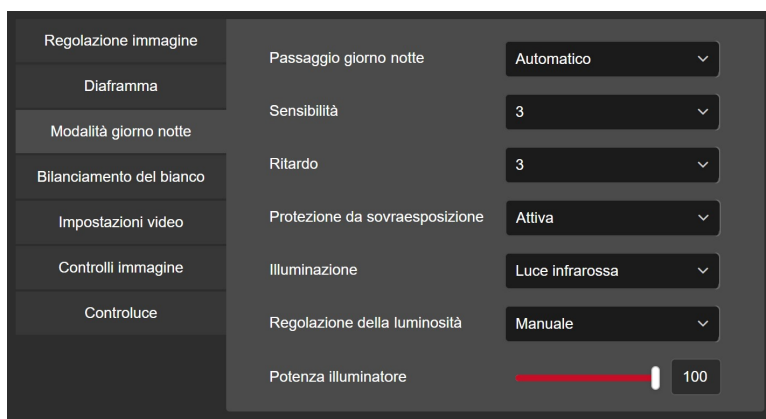


In this window you define the behavior of the electronic shutter (diaphragm). In some models the AUTOMATIC mode is available, in others only manual adjustment.

Aperture speeds can be set from 1 second up to 1/100000 sec. Depending on the model. Normally the factory setting is retained.

The ANTI-FLICKER adjustment is also available which automatically manages the diaphragm in order to avoid the waves that appear when shooting a screen.

DAY NIGHT MODE



All cameras in this range include day/night function with automatic IR filter removal (ICR). To understand the importance of this feature, it is first necessary to remember that all color cameras are equipped with an IR filter in front of the sensor capable of reducing the passage of infrared components of light which are not visible to the human eye. Without this IR filter the camera would produce strange colors during the day, not corresponding to those we are used to seeing. In cameras with infrared illuminators, the IR filter must be removed at night in order to allow the camera to see the light from the IR LEDs. For this reason the cameras in this range are equipped with a mechanical device capable of physically removing the IR filter when darkness falls. This feature is called ICR (**Infrared Cut-Filter Removable**) and guarantees the camera day/night performance. The camera automatically switches between day and night based on ambient light.

In night mode the recording takes place in B/W and the IR illuminators turn on. In this section the following parameters are adjusted:

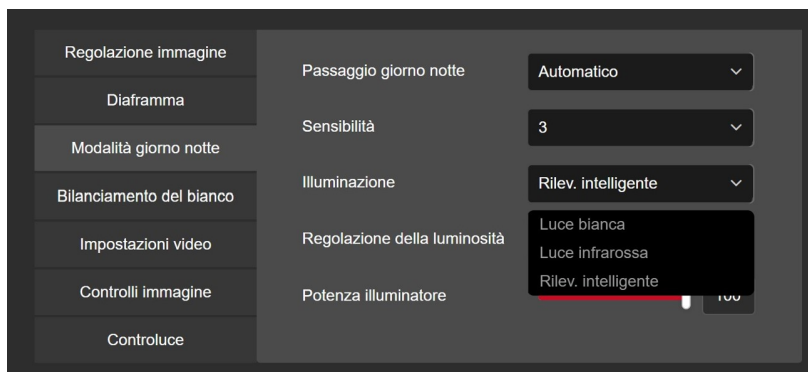
DAY/NIGHT SWITCHING – Defines on which basis the camera carries out the day/night switching with the following options: Always viewing in colour, Always viewing in B/W, Automatic switching between colours/BW, Switching on an hourly basis. Normally this option is kept on automatic so that the camera automatically switches to night (B/W) and day (color) mode based on its internal brightness sensor.

SENSITIVITY – The greater sensitivity of the light sensor corresponds to an earlier transition to B/W.

DELAY – You can insert a delay in the color-B/W switching if you notice that the camera switches to B/W in a timely manner due to reflections or plays of light

OVEREXPOSURE PROTECTION – Prevents a subject very close to the camera from appearing bleached out in night vision

LIGHTING – You can choose IR or white lighting, in cameras that have dual lighting. The IR light is invisible to the human eye and the camera records in B/W. This is the most used lighting in security cameras. Some cameras also have white light LEDs that illuminate the area like a beacon and allow the camera to shoot in color. Some cameras, with deterrent functions, also have the Intelligent Detection option, with which the camera normally illuminates infrared and turns on the white light when it detects a human presence.



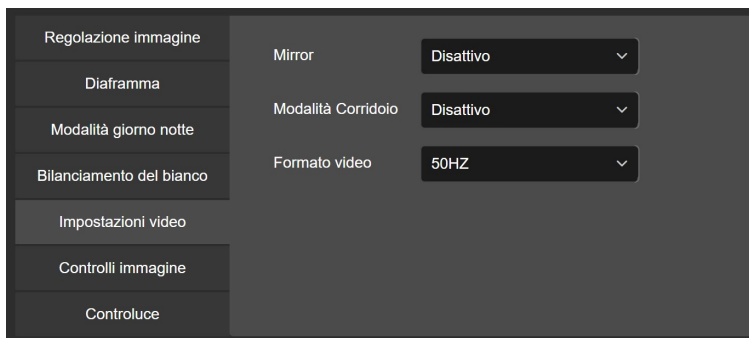
ILLUMINATOR POWER – You can adjust the night lighting power of the illuminator. It is best to reduce the power when the camera is shooting at a short distance and excessive LED power can lead to an overexposed and bleached subject.

WHITE BALANCE



In this window you define the white balance in order to make the white color realistic in all light situations. There may be several automatic options available to try based on the ambient light source and also a manual adjustment that offers the ability to set the white tone manually with the sliders for each color.

VIDEO SETTINGS



Here you can change the appearance of the image,

MIRROR - allows you to flip the image vertically or horizontally or both. This is a useful option if the camera is mounted in an unconventional way, such as upside down. **CORRIDOR** - shows the image rotated so that the long side is vertical instead of horizontal. It is a useful option if you are shooting long, narrow areas, such as corridors, and requires the camera to be mounted rotated 90 or 270° from its natural position.

VIDEO FORMAT - Adapts the device to the local frequency. In Italy select 50Hz

IMAGE CONTROLS



In this section there are some digital functions to compensate for difficult shooting situations WDR (Wide Dynamic Range) - allows you to improve vision when there are areas with different brightness in the image, for example in the case of an external shot on a porch

NOISE REDUCTION - Allows you to reduce the noise of the video signal when disturbing phenomena are present such as in color shooting with low brightness

ABERRATION REDUCTION - Reduces image deformations introduced by very wide-angle lenses

ANTI-FOG - Improves, as far as possible, visibility in case of fog.

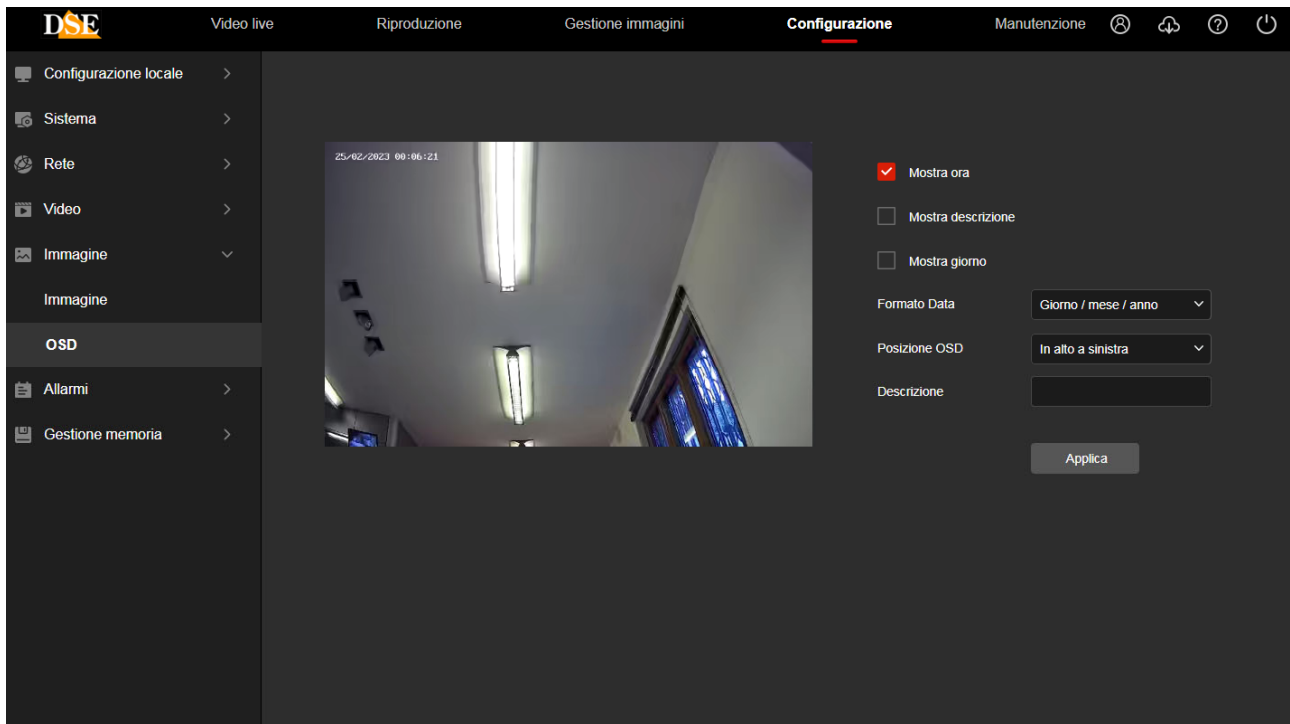
BACKLIGHT



BACKLIGHT - This function, also called BLC, is used to improve the visibility of a dark subject on a light background such as a customer entering a shop shot from the front.

ANTI-GLARE - This feature artificially dims strong light sources, such as car headlights, to prevent them from blinding the camera by dazzling it.

OSD SETTINGS



It is possible to define which information must appear on the image superimposition. You can enter the date and time with the name of the day and also a description of your choice, such as the name of the camera, to be typed in the DESCRIPTION box.

You can choose the date and time format and the position of the overlay: top or bottom left.

ALARMS

Cameras can generate alarms and perform actions. This alarm section includes NORMAL EVENTS and, if you have purchased a camera with human detection, also the INTELLIGENT EVENTS section.

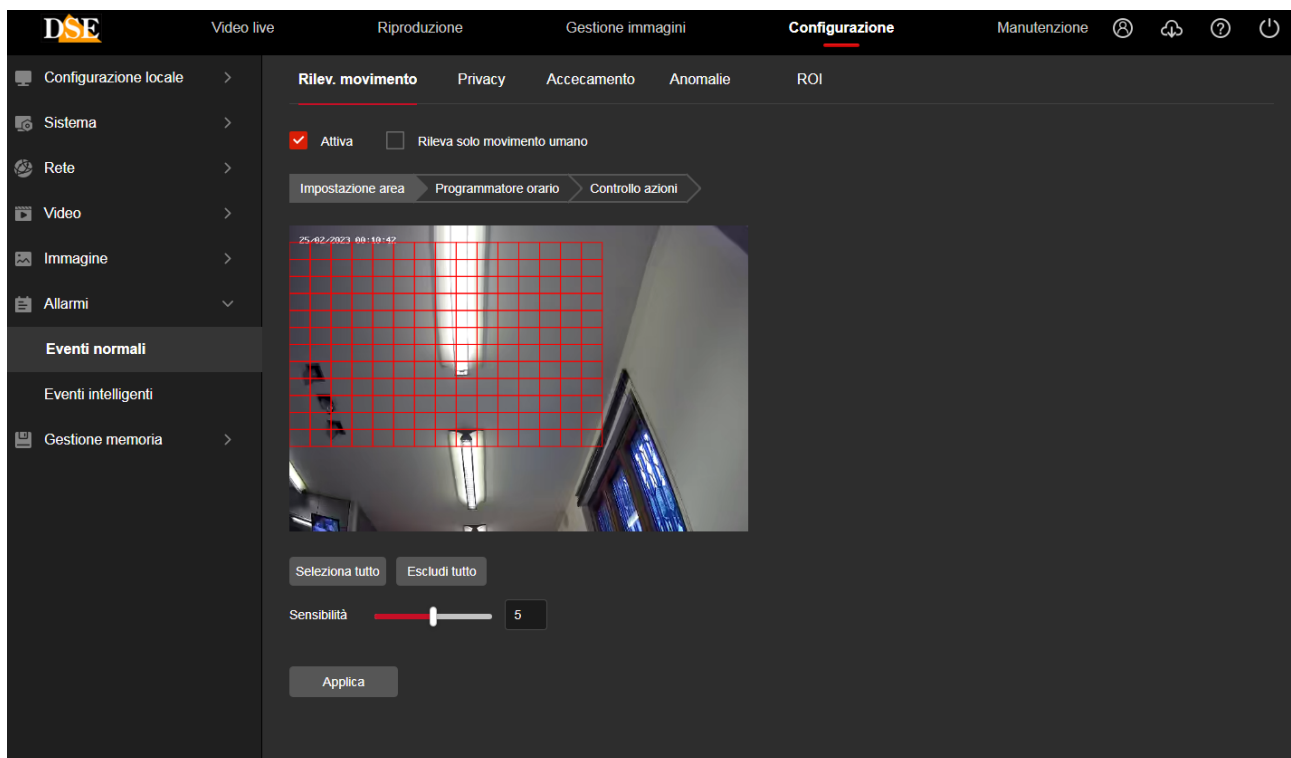
NORMAL EVENTS

These are traditional camera detections, which do not require intelligent video analysis

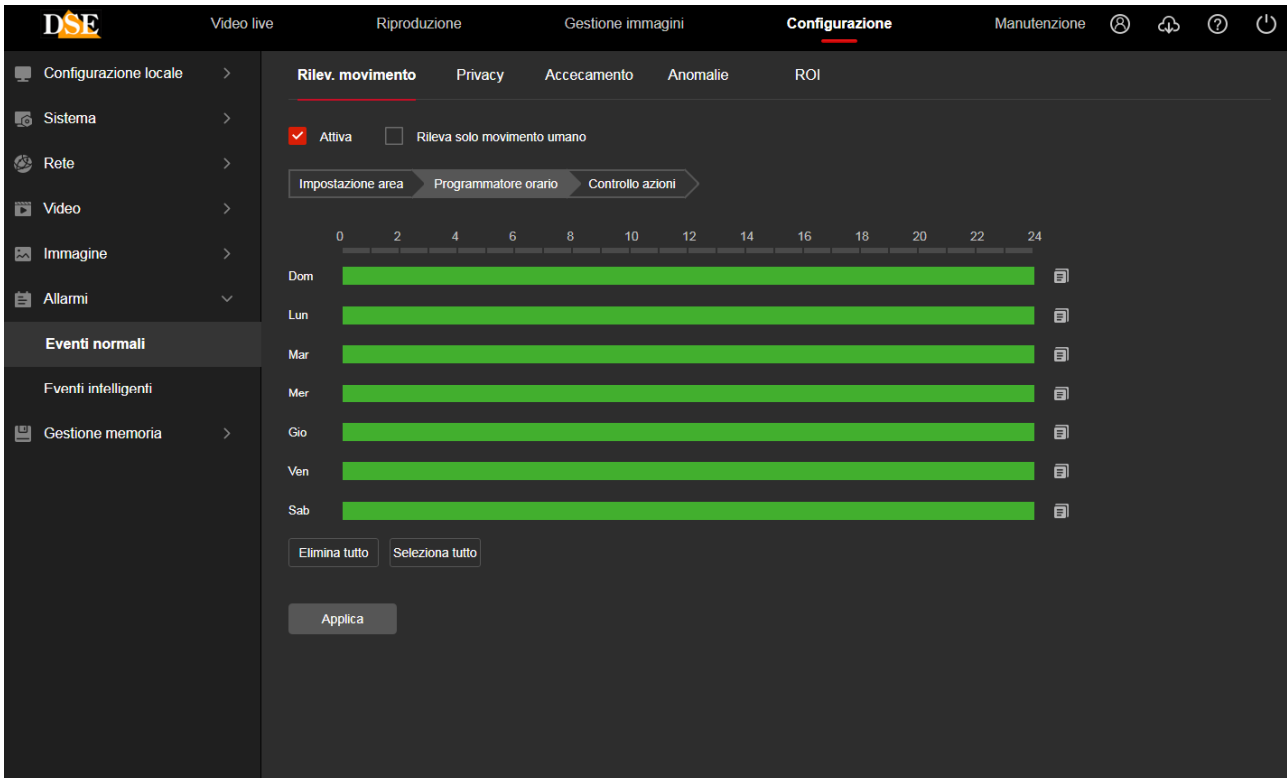
MOVEMENT DETECTION

RK cameras are able to detect the presence of subjects and moving objects in the field of view and trigger alarm actions.

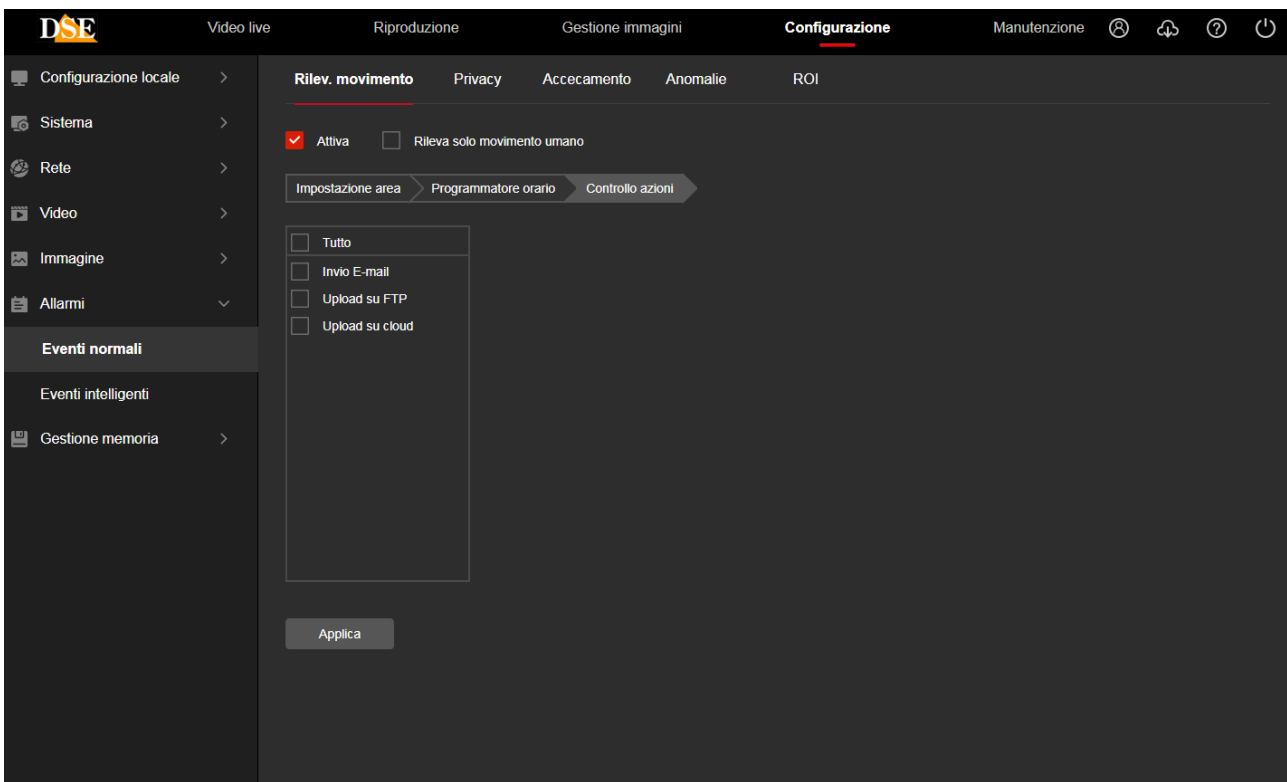
The motion detection setting is carried out in 3 windows: area setting, time programmer and action control.



AREA SETTING - In this first section you define, by dragging the mouse on the screen, the area in which the detection will be valid. Furthermore, the detection sensitivity is set to avoid untimely alarms (from 0 to 10). The "Detect human motion only" option allows you to use the intelligent human detection algorithm, normally used by intelligent detections, also in this traditional detection section.



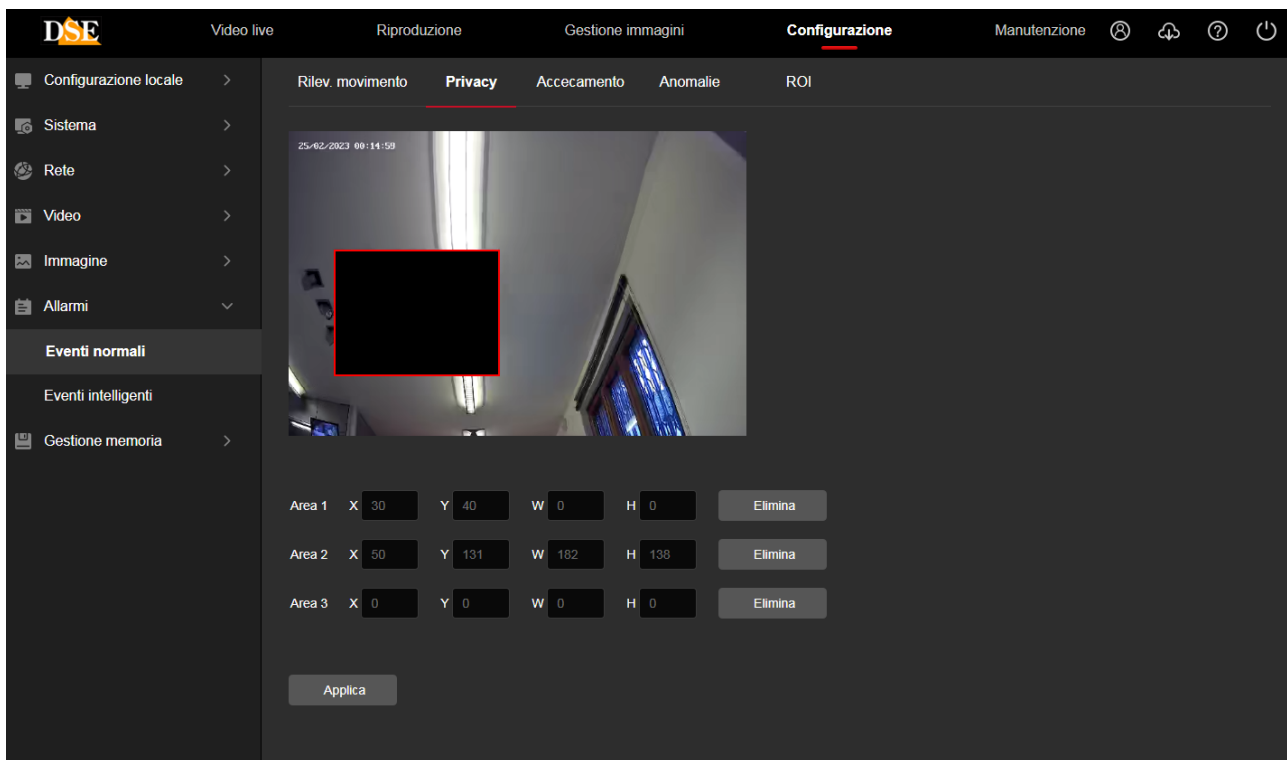
TIME PROGRAMMER - In this second window regarding Motion Detection you define in which time slots of the week the motion must be activated.



ACTION CONTROL - In the last window of the motion adjustment, the alarm actions to be performed in the event of a motion alarm are established: Sending alarm via email, Upload via FTP, Upload to the Google Cloud server and possibly others such as recording on SD card or I activation of alarm outputs, if the camera has them.

PRIVACY

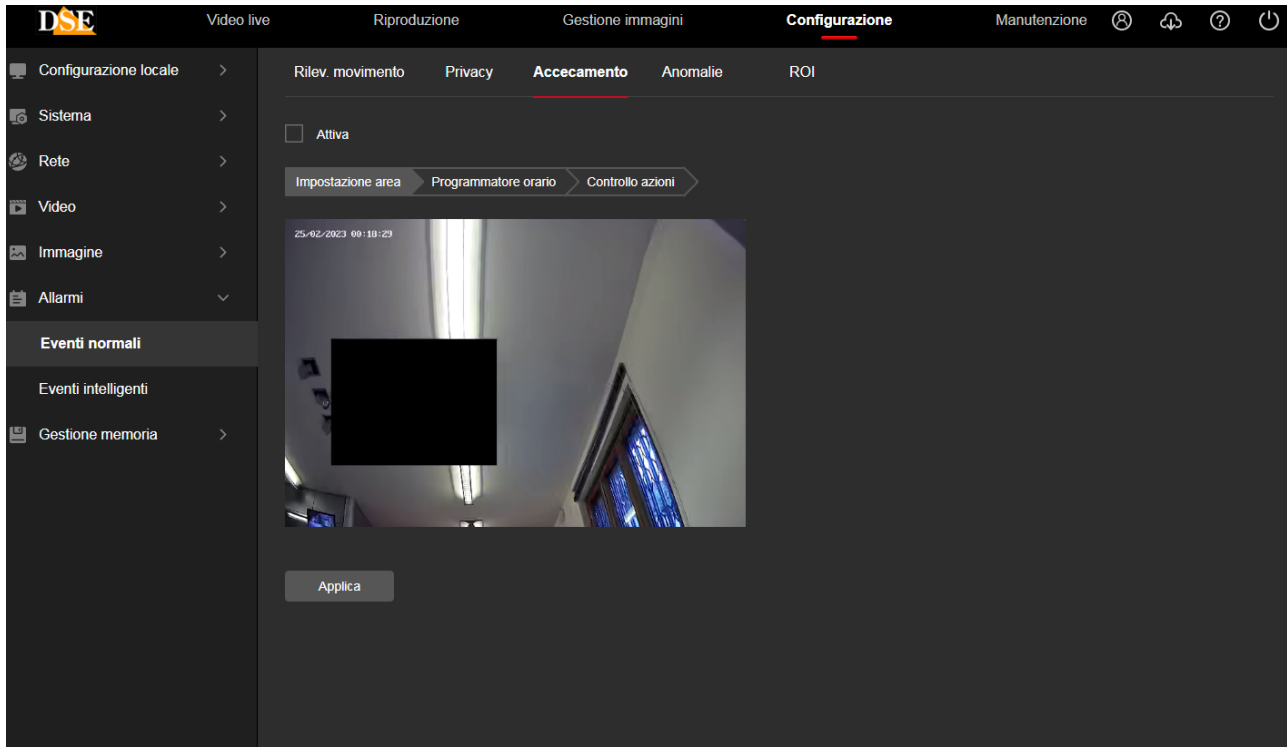
The RK series cameras allow you to mask areas of the image to protect privacy needs.



It is possible to track up to 3 privacy masks with the mouse.

BLINDING

Some RK series cameras allow you to report if the camera is blinded by covering its field of view. This allows you to generate an alarm if the camera is subject to sabotage.



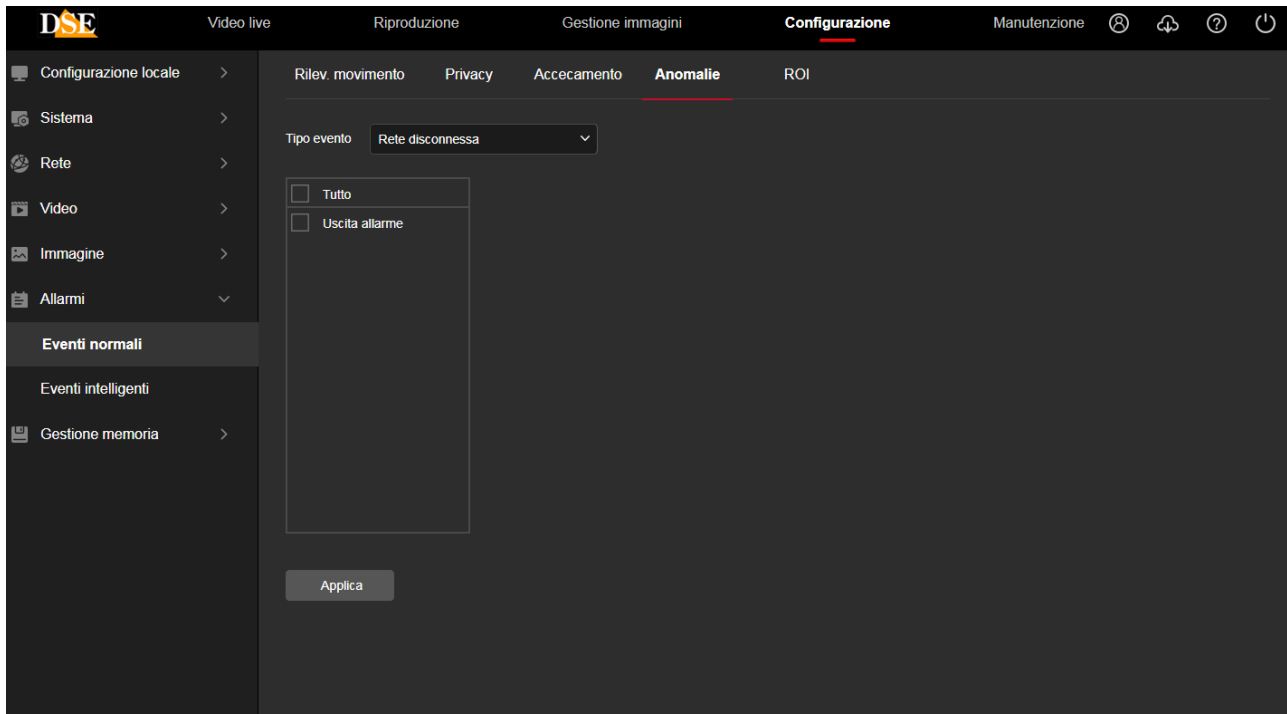
As in the motion detection described above, you can draw the area being detected and set the sensitivity. In the Scheduled Arming and Actions windows you can enable detection in certain time slots and define alarm actions.

ALARM INPUTS

If your camera has alarm inputs you have a window to set the operation, time enablement and alarm actions.

ANOMALIES

In this section you set the alarm actions to be performed in the event of technical anomalies, such as loss of network connection, an IP conflict detected on the network or disk full. Since many of these anomalies involve a network dialogue problem, the alarm actions permitted are only local to the camera.



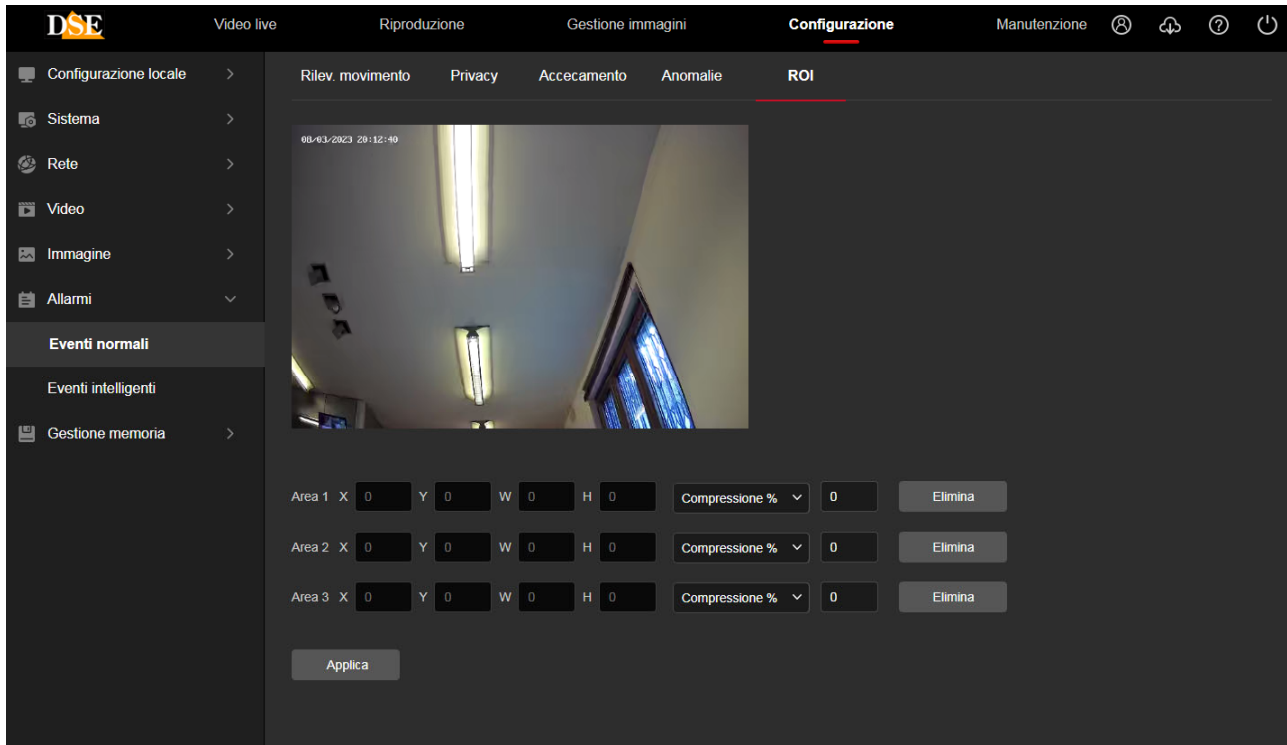
ROI

Some RK cameras can manage the: Region Of Interest (ROI) or Areas of Interest. This is an advanced setting aimed at optimizing the use of video compression in the image. Under normal conditions the camera uses the same type of video compression throughout the image. By setting ROIs you can define particularly important areas where the camera requires lower video compression and therefore higher video quality.

You can set up to 3 areas by drawing them on the screen with the mouse. For each area you can enter a compression value that can range from 0 to 51. A higher value corresponds to greater compression, therefore lower video quality, but less weight.

If you are setting an area of particular importance it is best to set a very low compression value.

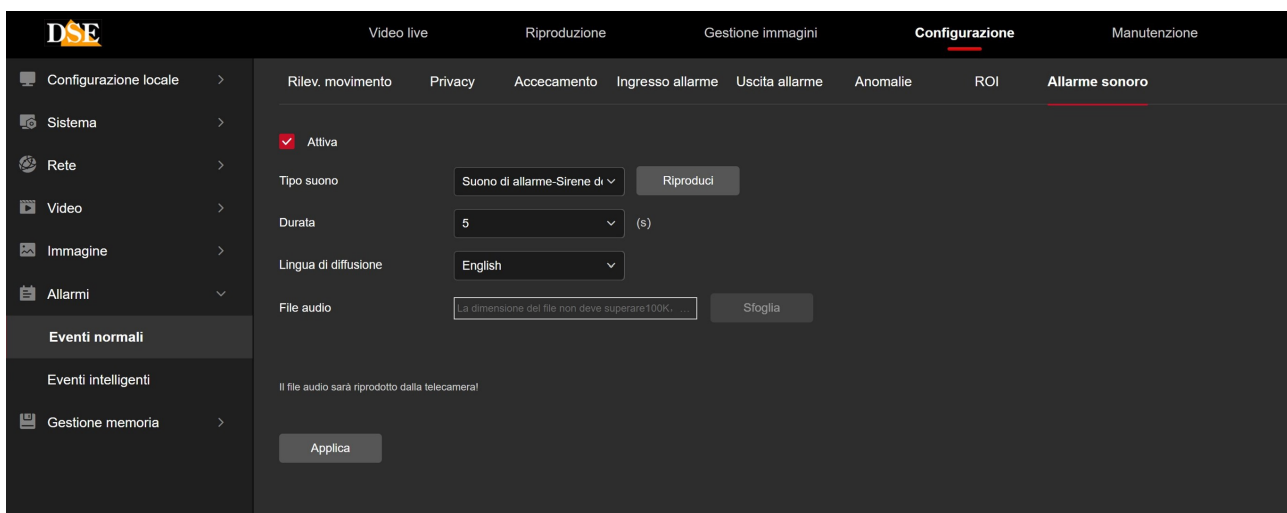
You can set an absolute or percentage compression value. The absolute value should be used with caution because it imposes constant compression and therefore the video bitrate could vary greatly based on the movements in the image.



Regions Of Interest (ROI) are only effective with H264 and H265 compressions.

SOUND ALARM

Some cameras are equipped with a built-in speaker and therefore have a sound alarm configuration window that the camera plays when it detects an intruder



SOUND TYPE – You can choose between different alarm sounds and pre-recorded warning messages in English. You can also choose the last CUSTOMIZE option to upload your own personalized message. The camera plays this message if an intrusion is detected. PLAY – Press this button to listen to the message from the camera speaker



DURATION – Defines how long the camera will repeat the sound message in the event of an alarm

LANGUAGE OF DIFFUSION – You can use standard messages in English or customize your own message by choosing the last option in the Sound Type box.

AUDIO FILE – If you have chosen to play a custom sound, here you can choose an audio file on your computer, which you will have previously recorded, to load it into the camera. The camera only supports audio files in .G711u format and with a maximum size of 100K. You can download various pre-recorded sounds and warning messages in Italian from our site, ready to load into the camera.

If you want to record your own personalized voice message you can do it using the Windows recorder which allows you to save audio files in m4a format. Once you have registered the file you can convert it to G711.u format with an online converter, such as:

<https://www.innovaphone.com/it/servizi/supporto/convertitore-audio.html>

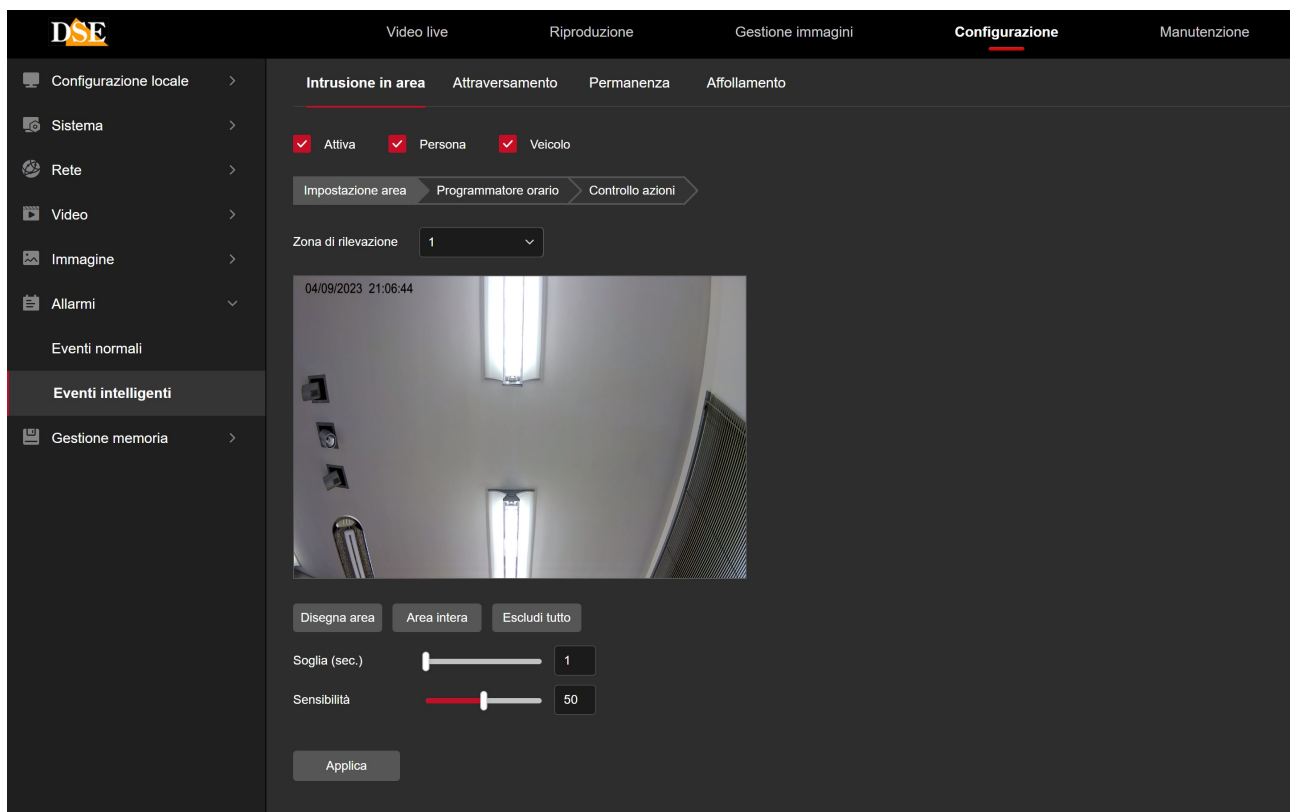
INTELLIGENT EVENTS – VIDEO ANALYSIS

Some cameras can generate alarms following intelligent detections, also called video analysis. If you have purchased an RK Series camera equipped with human detection or video analysis you will find the adjustments in the INTELLIGENT EVENTS section.

The availability of the various detection functions depends on the camera model purchased.

INTRUSION IN THE AREA

Thanks to area intrusion, the cameras can detect if a person and in some versions also a vehicle enter a defined area. This detection only detects a human and/or a vehicle and ignores vegetation, insect or other movements.



DETECTION ZONE - You can trace up to 4 detection areas (ZONE 1-2-3-4) in the image.

PERSON / VEHICLE – The detection algorithm is able to detect people or vehicles (in some cameras), you can enable only one or both detections.

TIME THRESHOLD – The alarm is triggered if a human figure or a vehicle enters the area and remains there for at least the number of seconds you set in this box

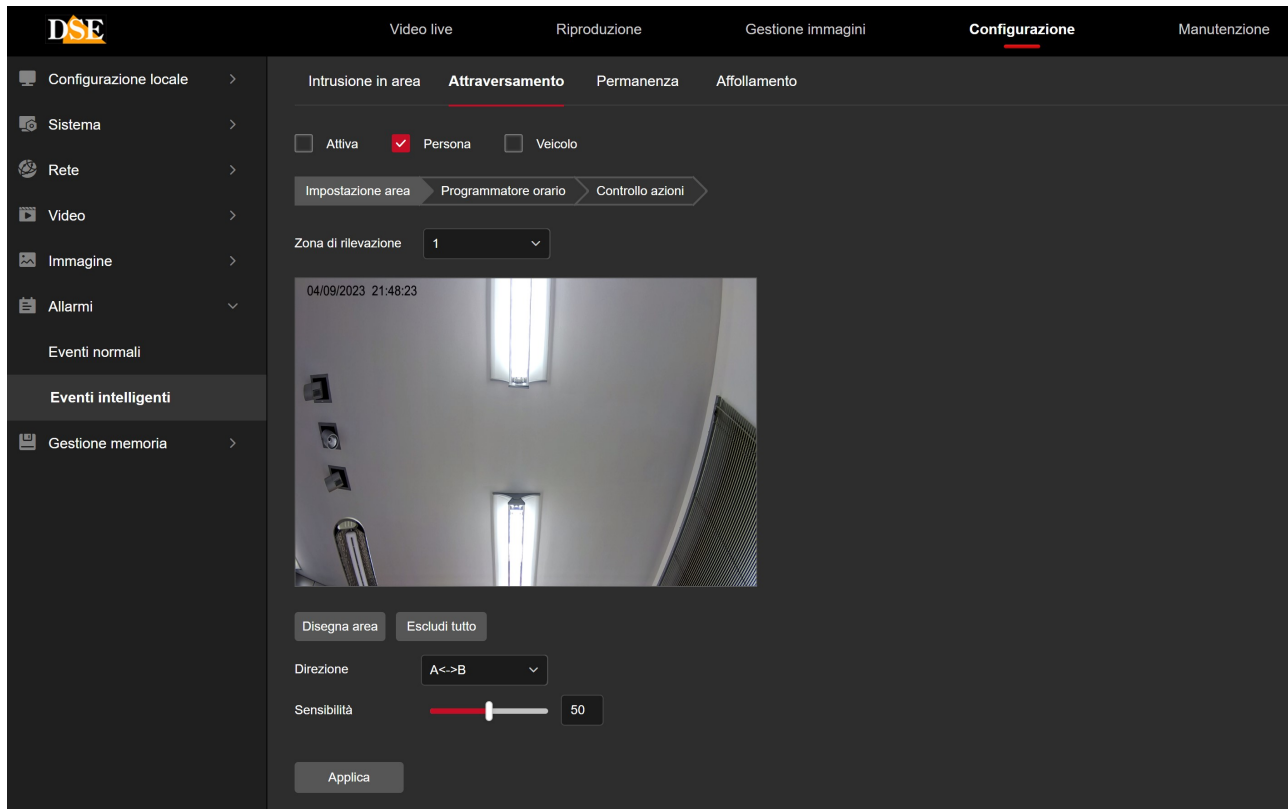
SENSITIVITY – Makes the detection more or less sensitive

In the other tabs you can set the time activation and the actions to be performed, as for the others

normal alarms described previously (motion detection)

CROSSING

Thanks to crossing, the cameras can detect if a person or, in some models, a vehicle crosses a virtual line. This detection only detects a human and/or a vehicle and ignores vegetation, insect or other movements.



DETECTION ZONE - You can draw up to 4 crossing lines (ZONE 1-2-3-4) in the image.

PERSON / VEHICLE - The detection algorithm is able to detect people or vehicles (in some cameras), you can enable only one or both detections.

DIRECTION - The alarm is triggered if a human figure or vehicle crosses the line in a specific direction or in both directions.

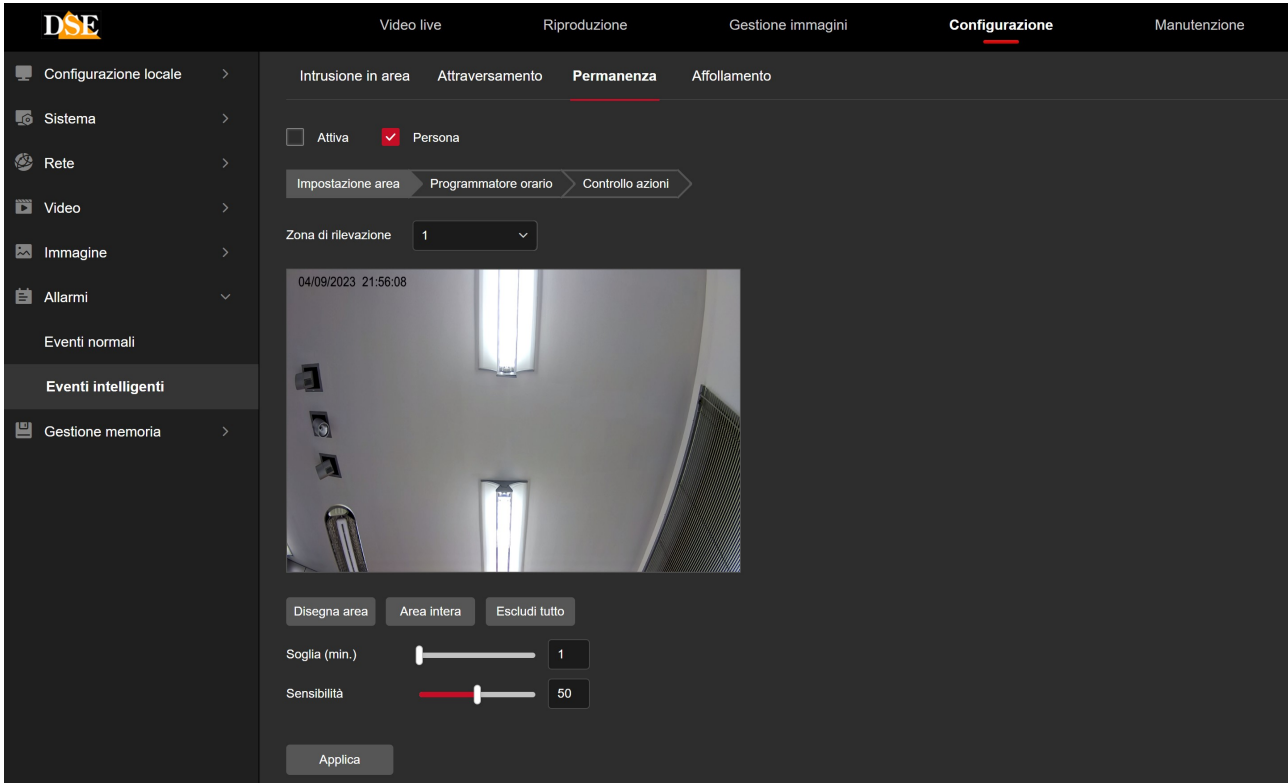
SENSITIVITY - Makes the detection more or less sensitive

In the other tabs you can set the time activation and the actions to be carried out, as for the other normal alarms described previously (motion detection)

STAY

Thanks to permanence detection, cameras can detect if a person remains in a defined area for too long. This detection only detects a human person and

ignores movements of vegetation, insects or anything else.



DETECTION ZONE - You can trace up to 4 detection areas (ZONE 1-2-3-4) in the image.

PERSON - The detection algorithm can only detect people

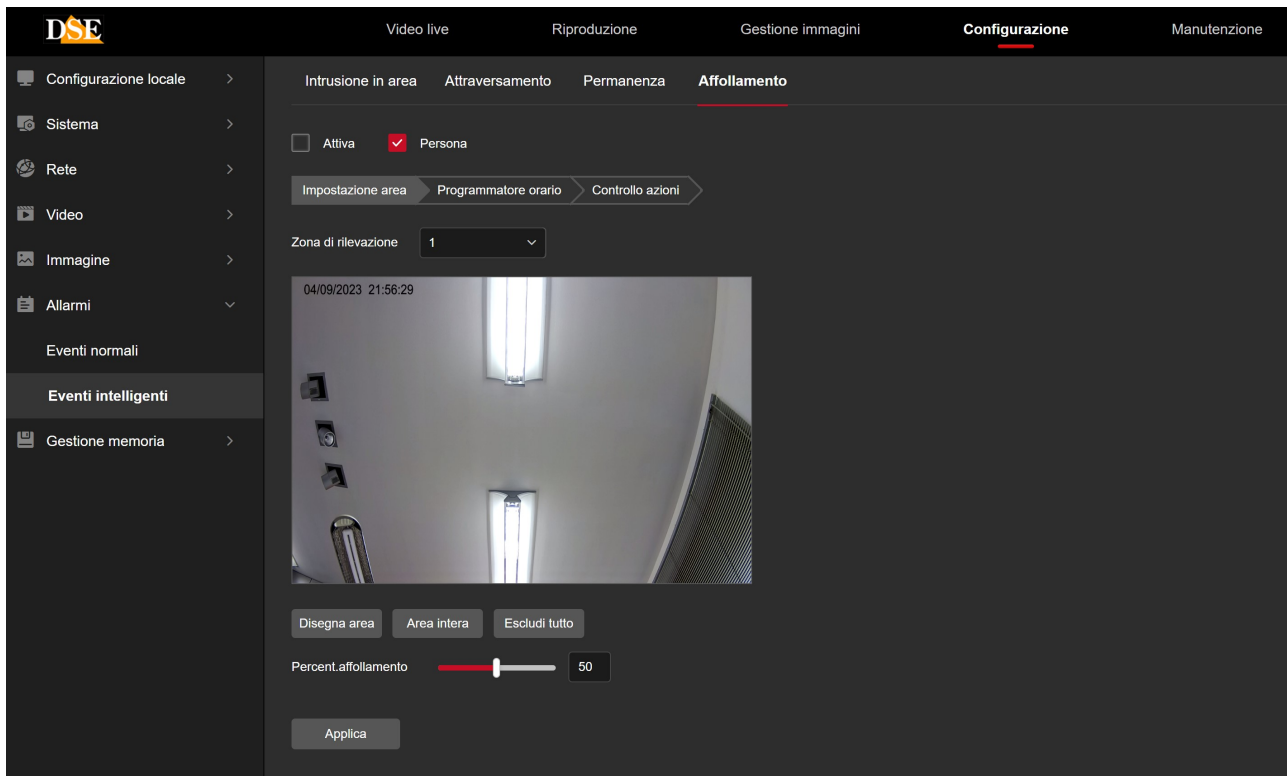
TIME THRESHOLD - The alarm is triggered if a human figure enters the area and remains there for at least the number of minutes you set in this box

SENSITIVITY - Makes the detection more or less sensitive

In the other tabs you can set the time activation and the actions to be carried out, as for the other normal alarms described previously (motion detection)

CROWDING

Thanks to crowding detection, cameras can detect if too many people crowd a certain area. This detection only detects a human person and ignores vegetation movements, insects or other.



DETECTION ZONE - You can trace up to 4 detection areas (ZONE 1-2-3-4) in the image.

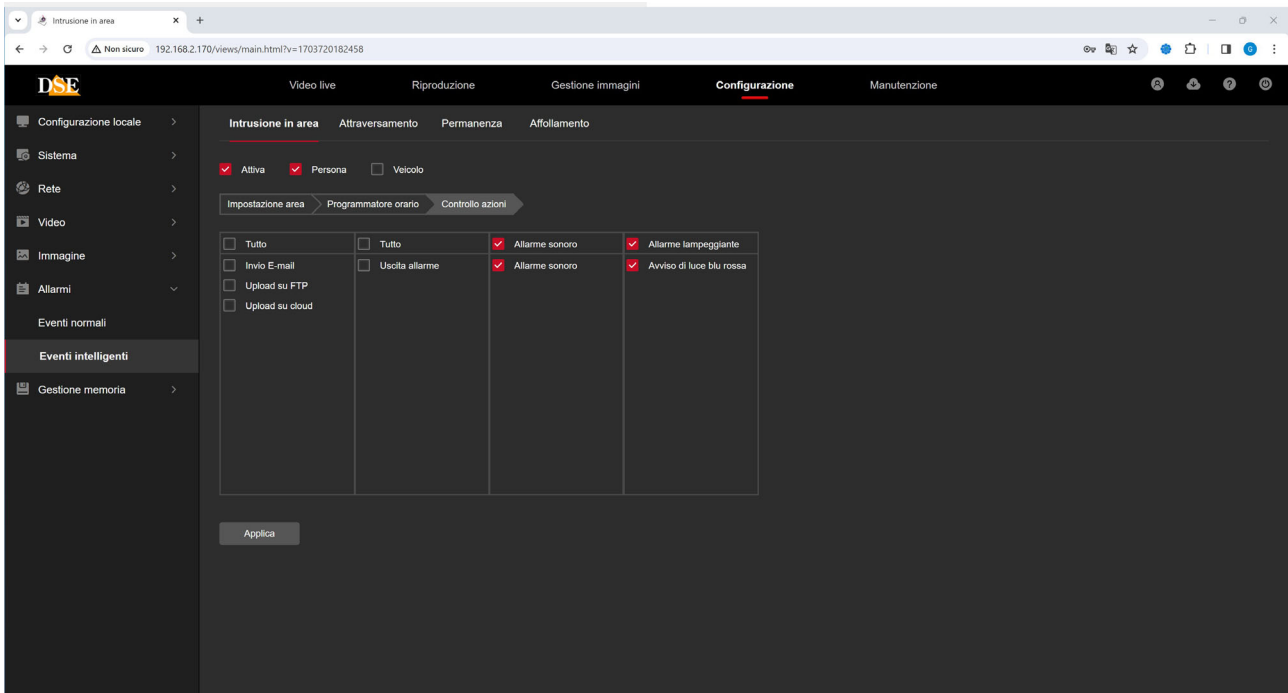
PERSON - The detection algorithm can only detect people

CROWDING PERCENTAGE - You can set the percentage of crowding of the space necessary to trigger the alarm.

Each type of intelligent detection also has TIME PROGRAMMER AND ACTION CONTROL tabs, where you can set the time activation and the actions to be carried out, as for the other normal alarms described previously (motion detection).

ALARM ACTIONS FOR DETERRENT CAMERAS

Deterrent cameras use the same intelligent detections just described, but also have some specific alarm actions designed to dissuade the intruder from continuing his action.

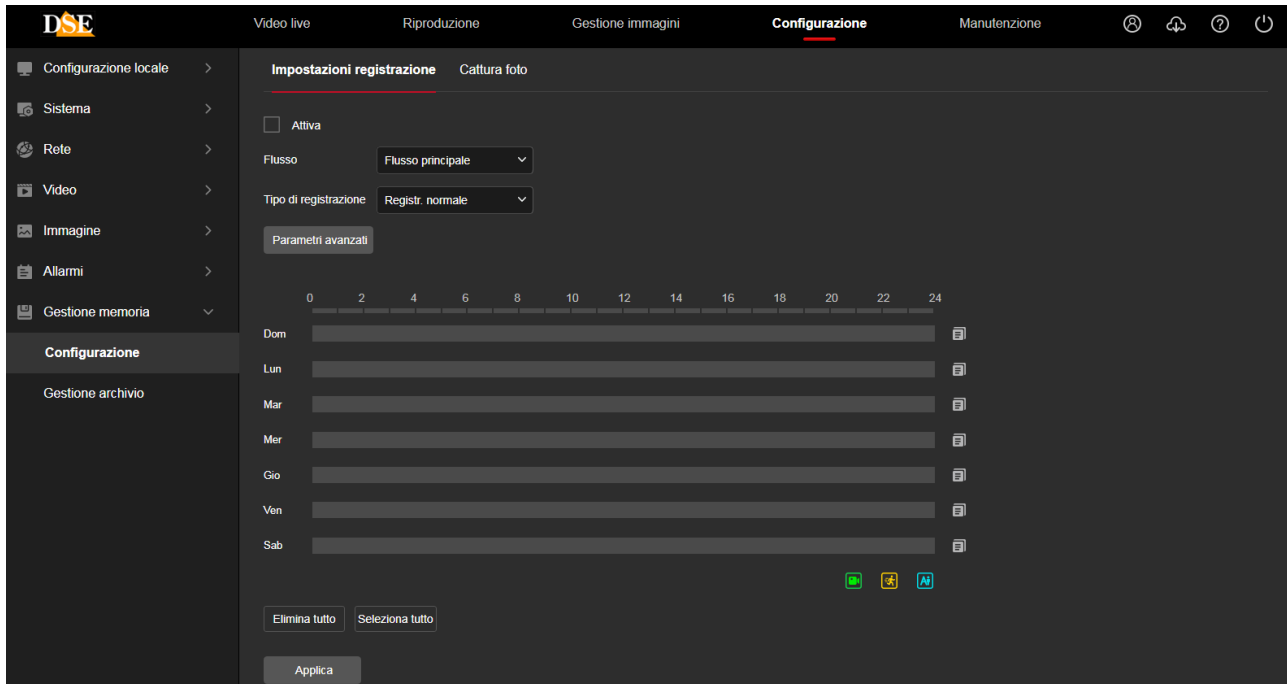


Among the alarm actions of deterrent cameras you will also find the AUDIBLE ALARM which allows you to broadcast a recorded message through the speaker built into the camera and the BLUE/RED LIGHT ALERT which activates the red/blue flashing light built into the camera. The audible alarm is set in the normal alarms section, as seen previously.

MEMORY MANAGEMENT

The cameras can save images on internal memory or in the cloud. In this section you set up these self-recording features.

RECORDING SETTINGS

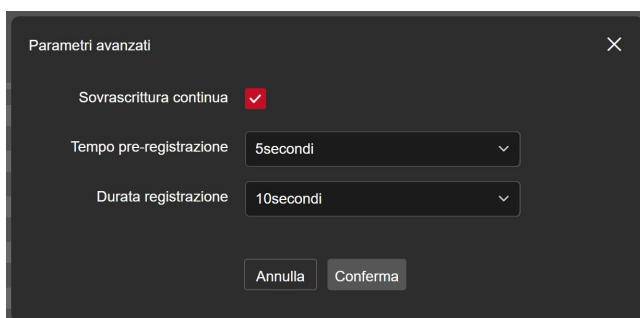


ACTIVATE - Activates autonomous camera recording

STREAM - You can decide whether to record the main stream at high resolution or the secondary one which allows you greater archive capacity.

TYPE OF RECORDING - You can decide whether to use normal recording therefore continuous or on motion detection or only in case of intelligent detection

ADVANCED PARAMETERS - Choose overwrite if you want the camera to continue recording with full memory by overwriting the oldest files. Alternatively you can choose Do Not Overwrite if you would prefer the recording to stop. You can also choose the recording and pre-recording time in case of event recording.



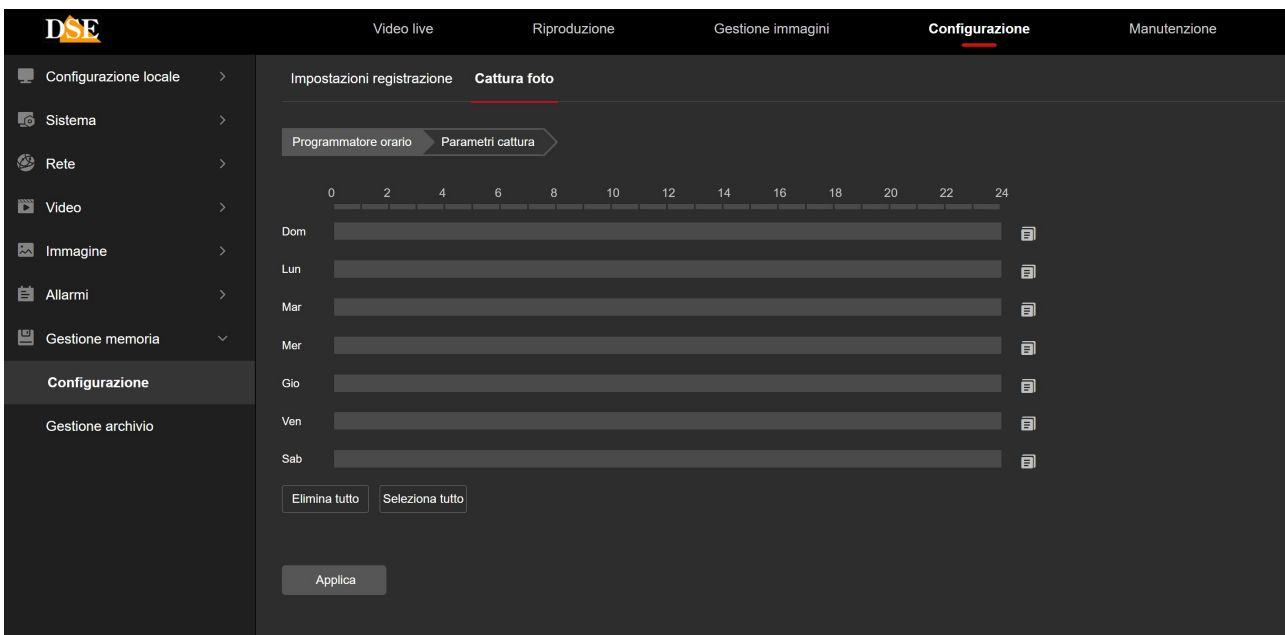
WEEK - For each day of the week you can set recording time slots



continuous mode (green color), motion detection (yellow color) and intelligent detection (light blue color). You can define time slots by dragging the mouse over the table, first choosing the type of recording you want to use in the top box.

PHOTO CAPTURE

In this section you can set photo capture following events or on a timed basis. In the first Time Scheduler window you can color the time slots in which to enable photo capture



In the second Capture Parameters window you can define when to capture photos

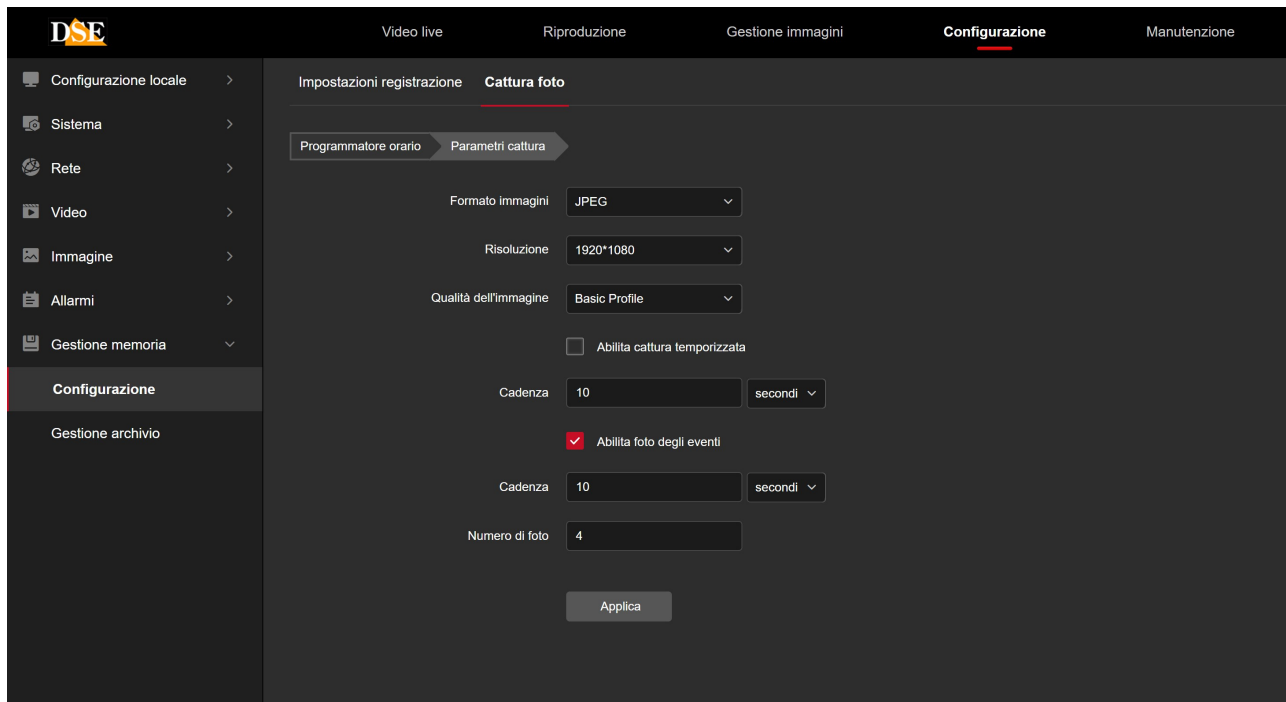


IMAGE FORMAT – Only JPEG available RESOLUTION –

Choose the photo resolution

IMAGE QUALITY - Choose the compression that determines the size of the files ENABLE TIMED CAPTURE - If you enable this option the camera will capture a photo with a cadence that you will indicate in the box below with the possibility of entering the cadence in seconds, minutes, hours or even days. Time-lapse capture is useful for documenting the evolution of a scene over time.

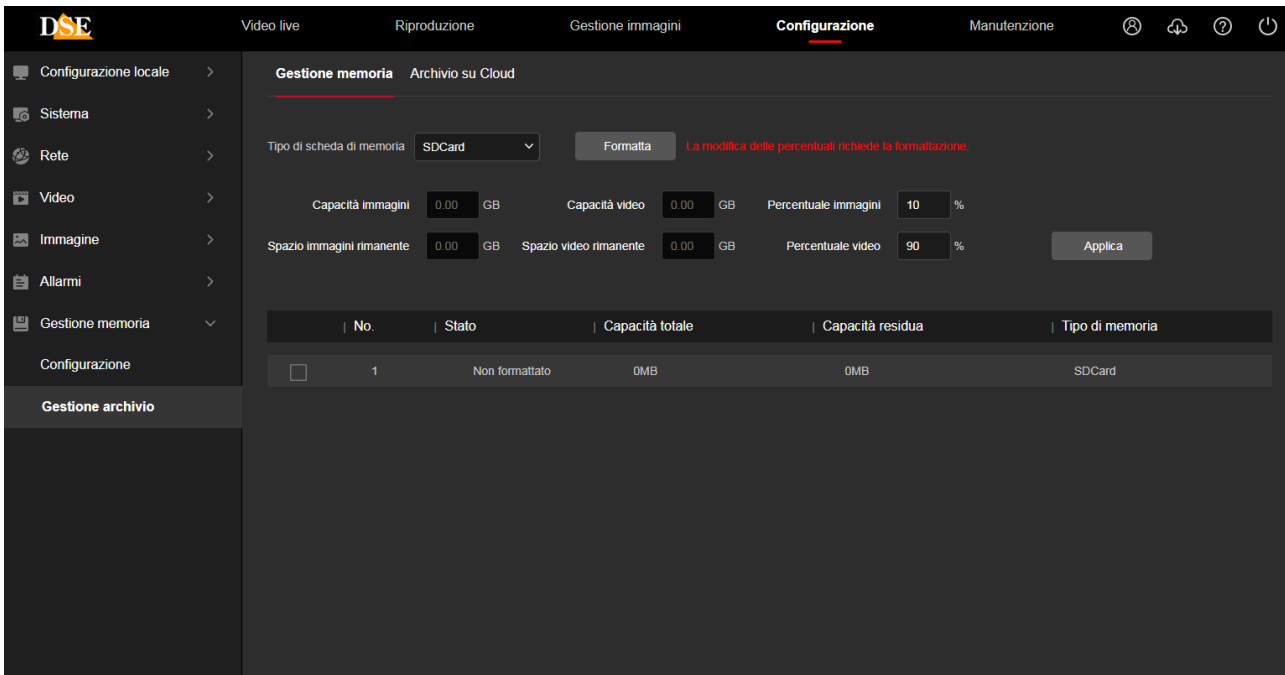
ENABLE PHOTOS OF EVENTS – If you enable this option the camera will take photos following the detection events. You can set the number of photos to take following an event and the frequency in seconds

MEMORY MANAGEMENT

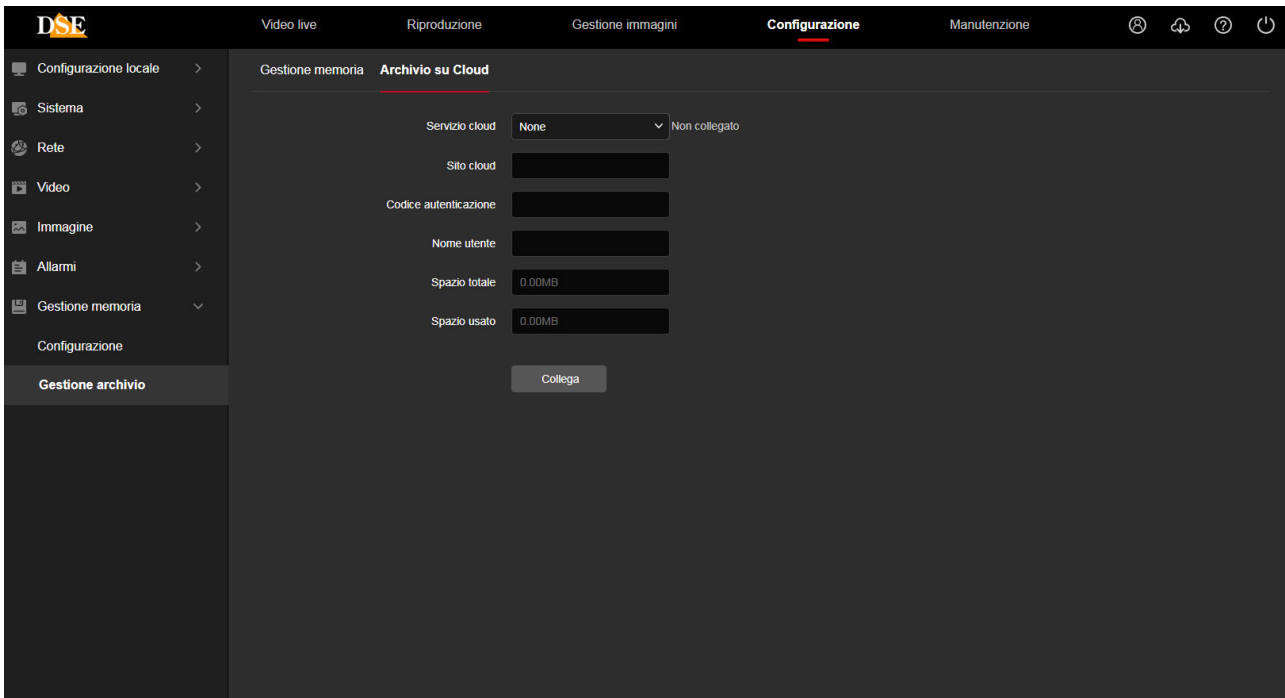
In this section you control the internal memory on which the camera can record. Some cameras have internal memory (EMMC), others have a slot where you can insert an SD card. In this window you can select the type of memory (EMMC or SD card) and see its status and capacity.

You can also format the memory, with the FORMAT button, which is essential to be able to start recording.

Before formatting the media you can set the percentage of memory space reserved for video recording (default 90%) and that reserved for photo archive (default 10%)



CLOUD ARCHIVE



The RK series cameras allow alarm images to be saved on external cloud servers. CLOUD SERVICE – Cloud services on the Google platform (Google Cloud) are supported and must be purchased on the provider's website.

The camera is already registered on Google Cloud.

CLOUD SITE/CODE – These fields are automatically completed when you select the service

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Google cloud, with the Google Cloud site address and the camera authentication code. Copy the address that will appear in a browser and follow the instructions to register the camera provided by the provider.

USERNAME – To be filled in according to the cloud provider's indications TOTAL /

USED SPACE – Monitor space usage on the cloud server.

The indication NOT CONNECTED or CONNECTED appears next to the Cloud Service box if the connection is established successfully.