# RH-xxx

## Fixed IP cameras

# RH-SDxxx

## Motorized IP cameras

# RH2-xxx

## 720P IP cameras

# Introduction

The RH series consists of IP network cameras based on ONVIF protocol with resolution from HD720P, up to 4K.

The units connect to a LAN via the RJ45 port like a computer or other network unit and the images are displayed on the PCs on the network using an Internet browser (IE, Chrome, Safari etc.) or special recording programs. DSE SMARTLIVE applications for access with iPhone, iPad and Android smartphones are also available on the APP STORE and GOOGLE PLAY.

The power supply is possible with 12VDC adapters or through the same network cable thanks to the Power over Ethernet (POE) technology supported by all cameras except for the speed-dome and wifi models.

The use of the best SONY C-MOS sensors guarantees image quality in all light conditions and during infrared shooting.

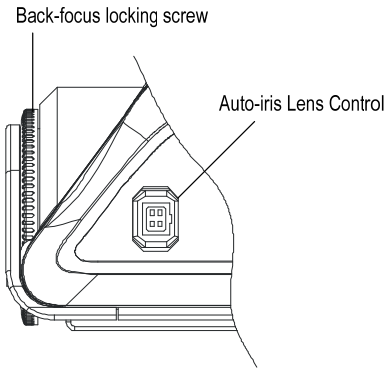
The megapixel resolution allows an image detail that cannot be reached with analog systems and the 16: 9 format, now a consolidated television standard, represents the new dimension of video surveillance, ideal for viewing on a PC monitor or wide screen TV.

The RH series network equipment uses H.265 Hi-Profile compression, a recent evolution in MPEG4 digital compression, used for example in Blu-ray discs for maximum video fidelity. The RH Series cameras fully support the international ONVIF protocol and are compatible with any multi-protocol IP recording software or network video recorder (NVR) capable of handling this standard. The cameras also support the RTSP protocol for streaming video to clients using this standard.

Network recording software for Windows XP / Vista / 7/8/10 capable of connecting up to 128 cameras and utilities for network configuration is included with each camera. SDK (Software Development Kit) is available for developers for the development of their own applications capable of interacting with cameras and ActiveX APIs to control the cameras via the web with their own graphic interfaces.

# Installation

## **RH-TCC1**- Box room




**CHOICE OF OBJECTIVE**

The camera is supplied without a lens. It is possible to combine all DSE VARIFOCAL lenses. For optimal results, you need to choose megapixel lenses capable of supporting the resolution of the camera (Ref. OM-xxxx). Also if you plan to use it with infrared illuminators use lenses with IR correction (Ref. XxxxxxxIR)

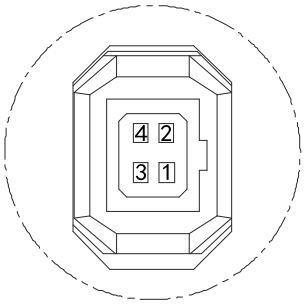
**MOUNTING THE OBJECTIVE**

The camera body is equipped with a rotating ring nut to adjust the position of the optical sensor. In this way it is possible to focus on any type of lens without having to use spacer rings. Once the lens is screwed in, adjust the focus. The camera is equipped with an analog BNC video output to be able to connect a small portable monitor and adjust the focus on the spot. Act by rotating the adjustment ring if you cannot get a perfectly focused image with the only focus of the lens.

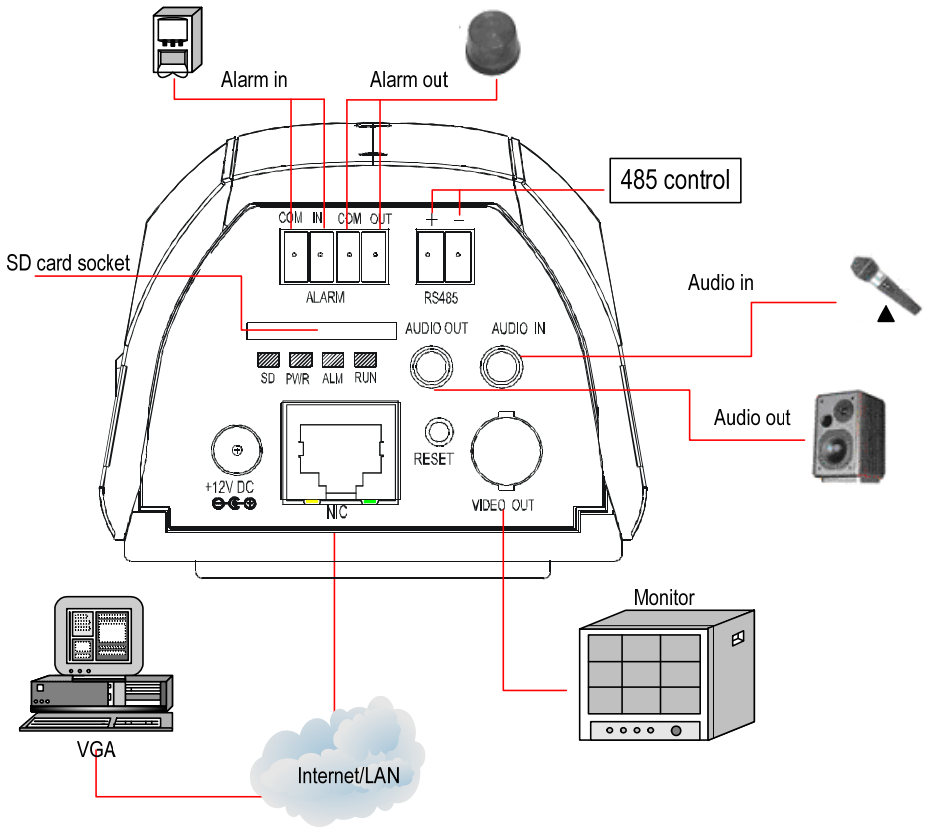
**USE OF AUTOIRIS OBJECTIVES**

The camera allows you to use fixed, manual and automatic iris lenses. In the latter case the autoiris lens is equipped with a connector to be connected to the camera body. The camera is compatible with all DC drive auto-iris lenses with the following connection connections.

| | Video | A.D |
|---|---|---|
| 1 | NC | Control + |
| 2 | VCC | Control- |
| 3 | GND | Drive- |
| 4 | Video | Drive + |




## REAR CONNECTIONS

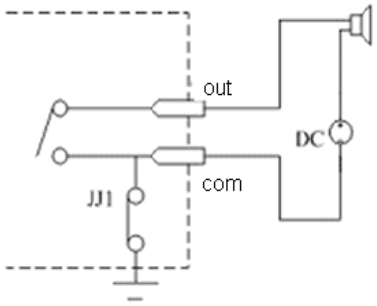



- AUDIO IN - MICROPHONE IN - The camera is equipped with a built-in microphone however a 3.5 mm minijack is available to connect an external microphone. The choice between the two sources is made in configuration. (Impedance 1 KOhm). Any microphone can be connected to the audio input as long as it has its own independent power supply, such as our RE-CM3 model. Microphones cannot be connected without power, such as computer microphones.
  A standard stereo mini-jack like the one shown below is used for connection.

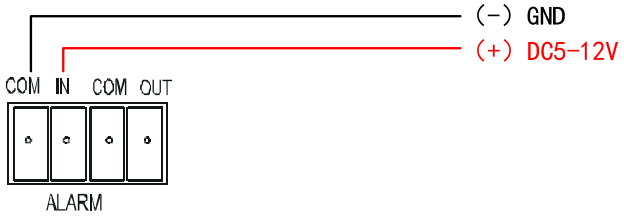
If you need to assemble the connecting cable between the microphone and the camera yourself, remember to connect the stocking of the 2 video cables to the first segment near the connector body and the 2 video signals to the remaining two segments in the center and at the end of the connector. It is possible to connect the microphone to any of the connectors as the camera manages audio in mono and not stereo format.

- AUDIO OUT - This 3.5mm jack allows you to connect local speakers. This function allows you to create a two-way audio conversation between the person in front of the camera and the operator in front of the client PC. (Upper impedance 16 Ohm)
- SLOT Micro SD CARD - Slot to insert a Micro SD card (max 32GB) to save images on the same camera.
- 12VDC - Plug to connect the 220VAC / 12VDC power supply (not included). Alternatively, it is possible to power the camera in POE directly from the network if the network switch supports this functionality.
- NIC (NETWORK) RJ45 - RJ45 FEMALE connector to connect the network. For connection to a HUB or network switch use a normal LAN cable. To connect only one PC directly, use a crossover cable.
- RS485 - This port allows you to connect external units such as pan / tilt or speed dome cameras to control them via the camera's web interface. Supported protocols Pelco P / D.
- ALARM IN / OUT - An input with a voltage between 5 and 12VDC can be connected to the alarm input between the IN and COM terminals. During programming it is possible to define whether the alarm is considered to be present or in the absence of voltage. The alarm output is used to operate external devices such as horns or lights. The contact is of the ON / OFF type with a maximum directly controllable load of 300mA at 12VDC. During programming it is possible to set the operation (NO / NC), any intermittence, and the activation duration in the event of an alarm.

  Example of output connection




Example of input connection




- VIDEO OUT - BNC output for connecting analog monitors. For example, it allows you to connect a portable monitor so that you can focus on the lens comfortably after mounting. ATTENTION: this output may not be active if disabled in the camera configuration.
- RESET - Button to reset the factory parameters. Press and hold for at least 5 seconds to restore factory settings including network data.

**MOUNTING THE CAMERA**

If installed indoors, the camera can be fixed to the wall with a camera bracket such as RE-ST2L. For outdoor installation, a protective housing such as RE-C3 must be used.

# **RH-BCC1xxx**- Waterproof camera with IR up to 80 m.

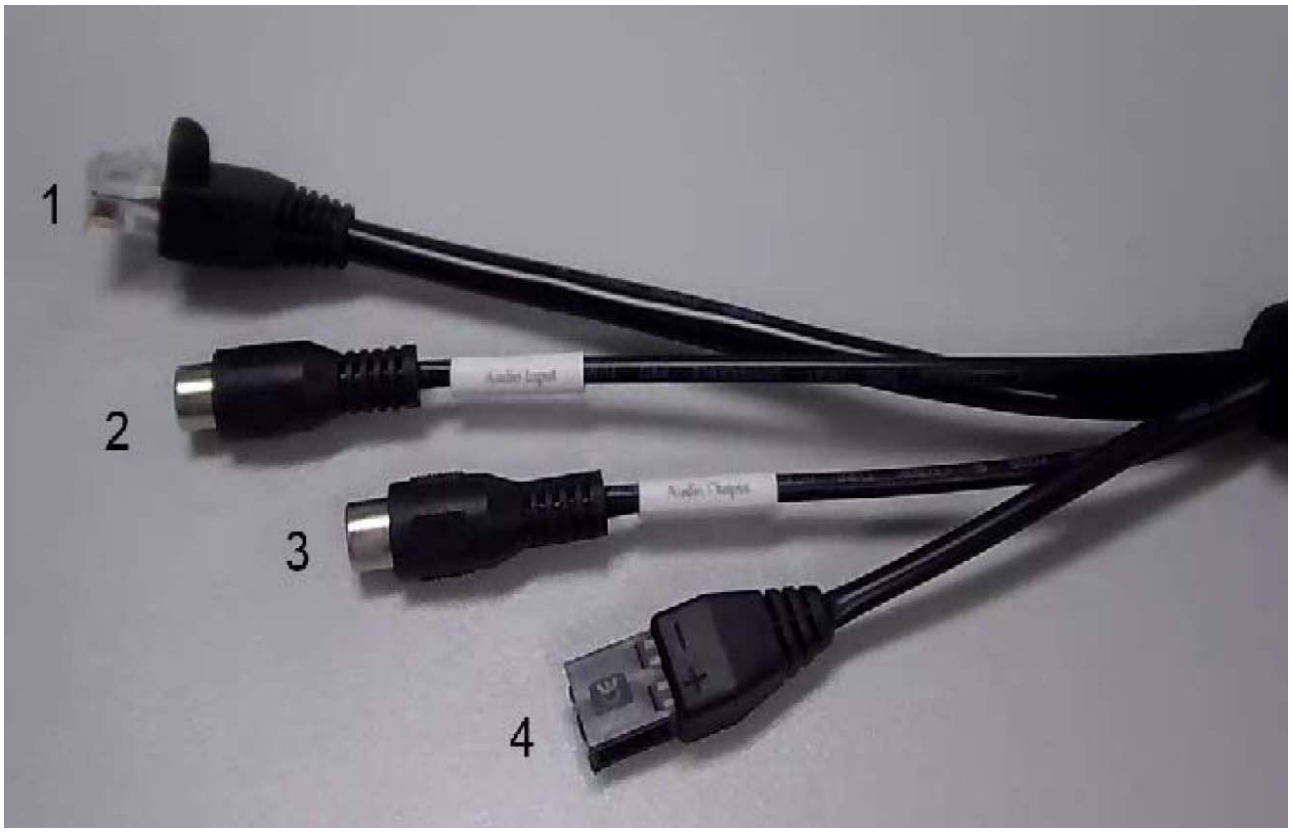
**OBJECTIVE ADJUSTMENT**

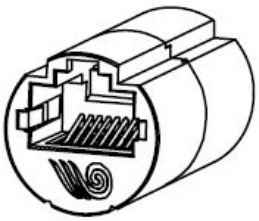
The camera is equipped with an adjustable lens to allow perfect adjustment of the area to be framed. The camera body is equipped with two screws to adjust the focal (ZOOM) and focus (FOCUS) placed in the lower part of the camera or with a motorized lens. There is also a local analog video output with RCA connector placed behind the watertight door on the lower side of the camera. This output can be used to connect a monitor locally and to adjust the lens in the actual operating position of the camera.

In manual cameras it is necessary to adjust the framed area with the focal screw and then act on the focus screw to optimize vision.

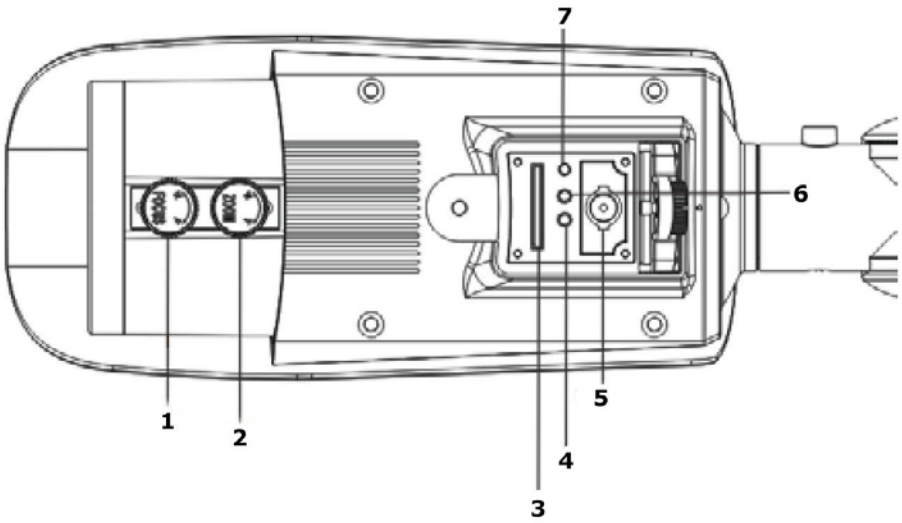
**CONNECTIONS**

The connections are placed at the end of the cable that comes out of the camera body. The cable with the connections is 40 cm long and is used to reach a protected box to be arranged so as to house the connectors inside.



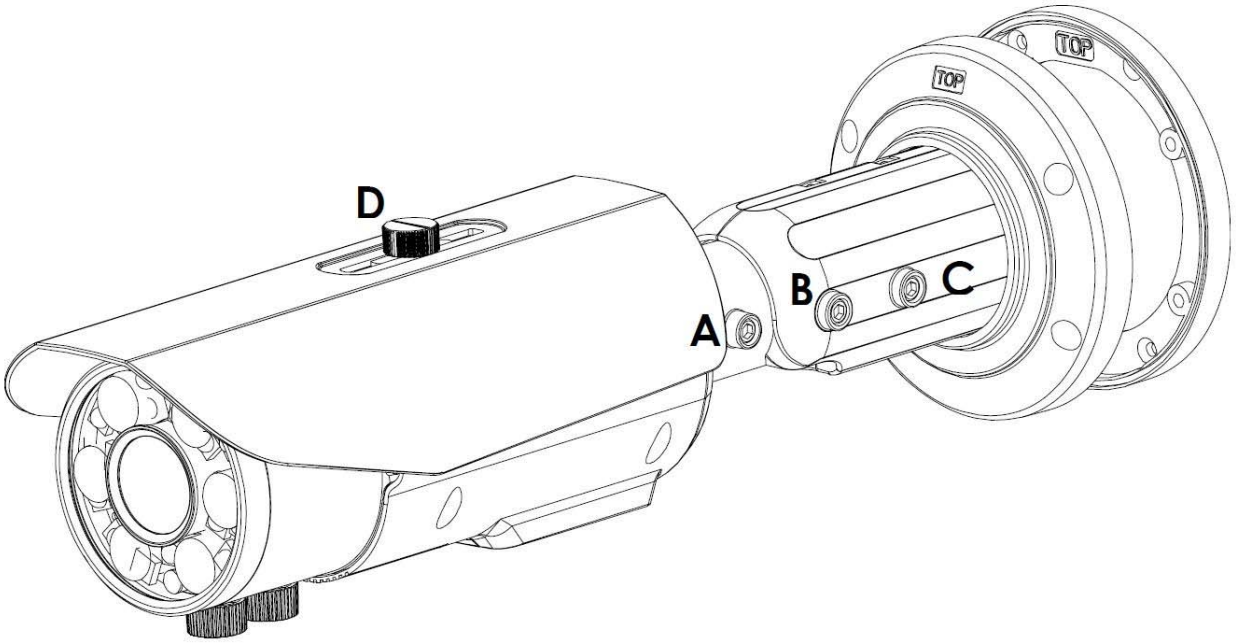
- RJ45 (NETWORK) (1) - MALE RJ45 connector to connect the network. For connection to a HUB or network switch use a normal LAN cable. To connect only one PC directly, use a crossover cable. The RJ45 female-female adapter is provided to connect a cable with a male connector.
- AUDIO IN (2) - MICROPHONE INPUT - The camera is equipped with a female RCA connector to connect an external microphone. (Impedance 1 KOhm)
- AUDIO OUT (3) - The camera is equipped with a female RCA connector which allows you to connect local speakers. This function allows you to create a two-way audio conversation between the person in front of the camera and the operator in front of the client PC. (Upper impedance 16 Ohm)
- 12VDC (4) - Removable 2-place terminal block to connect the 220VAC / 12VDC power supply (not included). Alternatively, it is possible to power the camera in POE directly from the network if the network switch supports this functionality.




- ZOOM ADJUSTMENT (1) - Adjusts the focal length from 2.8 to 12 mm
- FOCUS ADJUSTMENT (2) - Adjusts the focus
- SLOT Micro SD CARD (3) - The slot to insert a Micro SD card (max 64GB) to save images on the same camera is located behind the watertight door located on the bottom side of the camera.
- VIDEO OUT (5) - There is a female RCA output for connecting analog monitors. For example, it allows you to connect a portable monitor so that you can focus on the lens after mounting. The connector is located behind the watertight door located on the underside of the camera. ATTENTION: this output may not be active if disabled in the camera configuration.
- RESET (7) - The button to reset the factory parameters, including the network parameters, is placedbehind the watertight door located on the underside of the camera. Press and hold for at least 5 seconds to restore factory settings including network data.
- RED LED (4) -Placed behind the watertight door on the lower side of the camera, it indicates the correct power supply of the camera with external 12VDC power supply
- YELLOW LED (6) -Placed behind the watertight door on the underside of the camera, it indicates the correct dialogue with the network switch.

**MOUNTING THE CAMERA**

The camera has a waterproof container that allows it to be installed outdoors without protections.



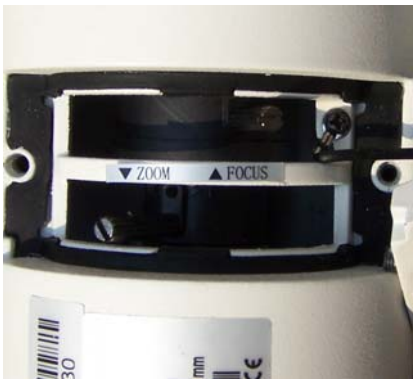

A metal fixing ring is supplied with the camera to be fixed to the wall with 4 anchors (supplied) using the drilling template included in the package. The word TOP is indicated on the ring to indicate the side to be held up. On this ring, firmly anchored to the wall, the camera bracket is screwed with 4 screws always respecting the word TOP so that the lateral cable exit slot remains downwards. The cables can pass behind the bracket or exit laterally through the slot in the bracket.

Pay attention to the gasket placed on the fixing disk which must remain in position in its seat during the fixing of the bracket to guarantee the impermeability.

The camera bracket is equipped with 3 ABC star screws (key supplied) which must be loosened to allow orientation on the 3 axes. Once the camera is correctly oriented, it is necessary to retighten them fully. Finally adjust the sun visor with screw D

# **RH-BCC3-4**- Waterproof camera with IR 25 m.

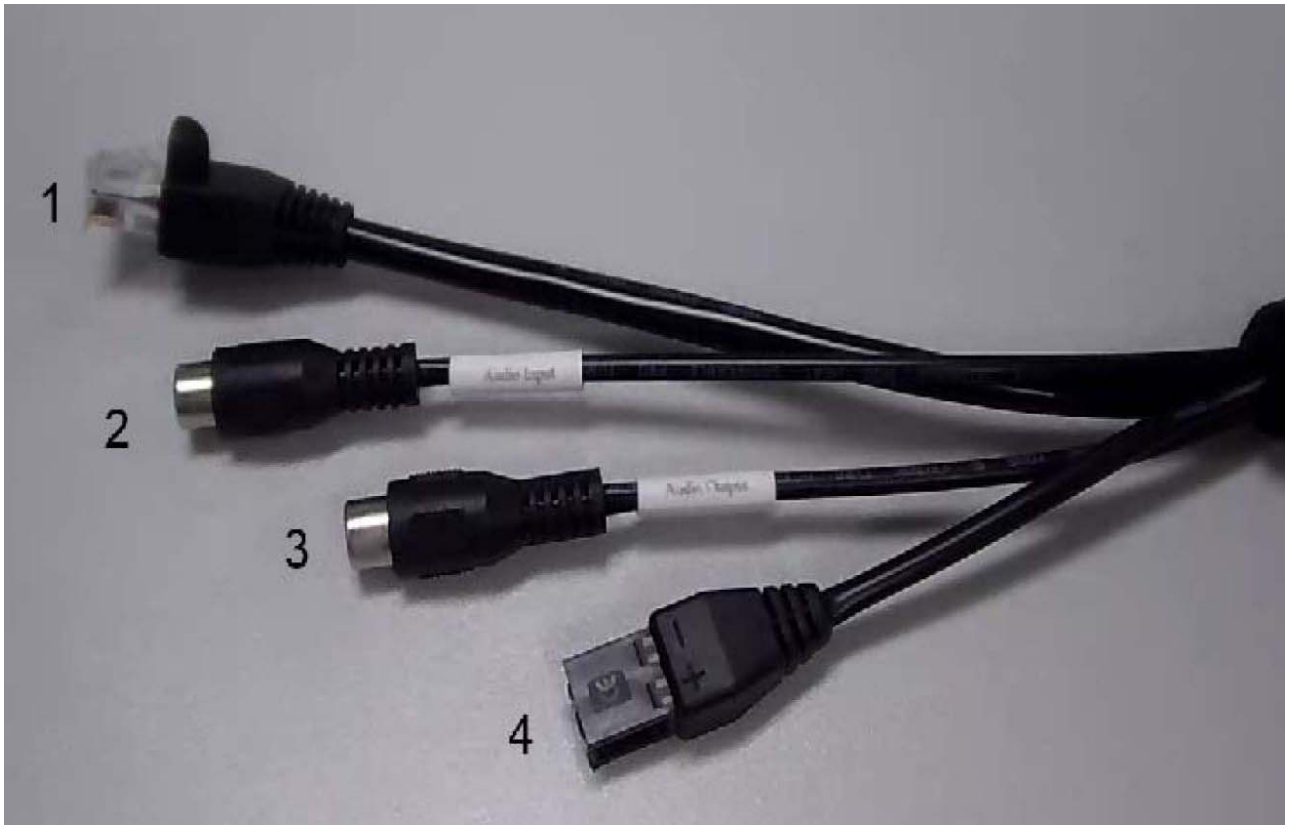
**OBJECTIVE ADJUSTMENT**

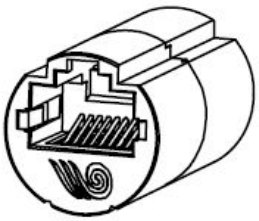



The camera is equipped with an adjustable lens to allow perfect adjustment of the area to be framed. The lens is equipped with two rings to adjust the focal (ZOOM) and focus (FOCUS) which can be accessed by unscrewing the white door located at the bottom of the camera. The door is integral with the camera and equipped with captive screws so it can be removed easily even with the camera mounted. Some models are equipped with a motorized lens.
There is also a local analog video output with RCA connector located behind the black watertight door on the lower side of the camera (see below). This output can be used to connect a monitor locally and to adjust the lens in the actual operating position of the camera.
Adjust the framed area with the focal screw and then adjust the focus screw to optimize vision.

**CONNECTIONS**

The connections are placed at the end of the cable that comes out of the camera body. The cable with the connections is 40 cm long and is used to reach a protected box to be arranged so as to house the connectors inside. Watertight boxes specially made for these models are also available as accessories.

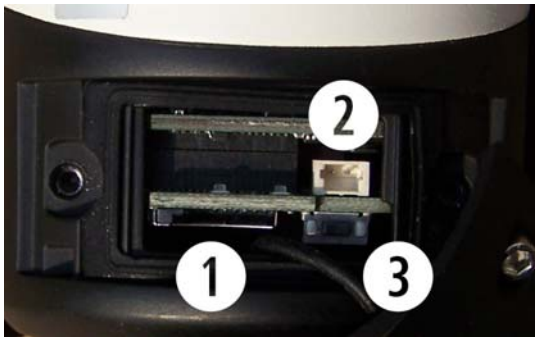


- RJ45 (NETWORK) (1) - MALE RJ45 connector to connect the network. For connection to a HUB or network switch use a normal LAN cable. To connect only one PC directly, use a crossover cable. The RJ45 female-female adapter is provided to connect a cable with a male connector.
- AUDIO IN (2) - MICROPHONE INPUT - The camera is equipped with a female RCA connector to connect an external microphone. (Impedance 1 KOhm)
- AUDIO OUT (3) - The camera is equipped with a female RCA connector which allows you to connect local speakers. This function allows you to create a two-way audio conversation between the person in front of the camera and the operator in front of the client PC. (Upper impedance 16 Ohm)
- 12VDC (4) - Removable 2-place terminal block to connect the 220VAC / 12VDC power supply (not included). Alternatively, it is possible to power the camera in POE directly from the network if the network switch supports this functionality. If using POE power, the 12VDC connector should not be used.

**REAR DOOR**

In addition to the door containing the lens adjustments, the camera is equipped with a second black watertight door.




- SLOT Micro SD CARD (1) - The slot to insert a Micro SD card (max 64GB) to save images on the same camera is located behind the watertight door located on the bottom side of the camera.
- VIDEO OUT (2) - Connector 2 is an analog video output for connecting analog monitors. For example, it allows you to connect a portable monitor so that you can focus on the lens after mounting. The cable with female BNC connector to be connected to this plug is supplied with the camera. ATTENTION: this output may not be active if disabled in the camera configuration.
- RESET (3) - The button to reset the factory parameters, including the network parameters, is placedbehind the watertight door located on the underside of the camera. Press and hold for at least 5 seconds to restore factory settings including network data.

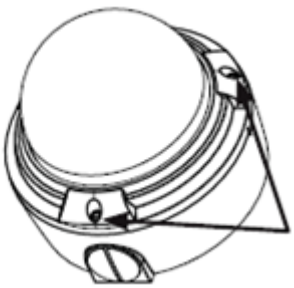
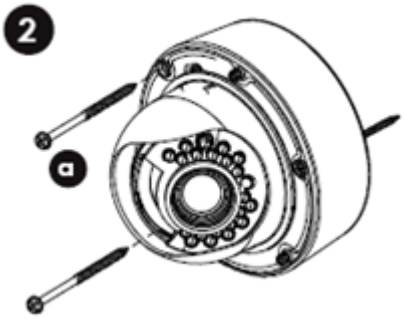
**MOUNTING THE CAMERA**

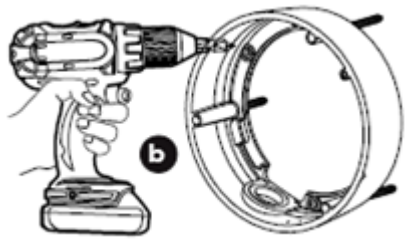
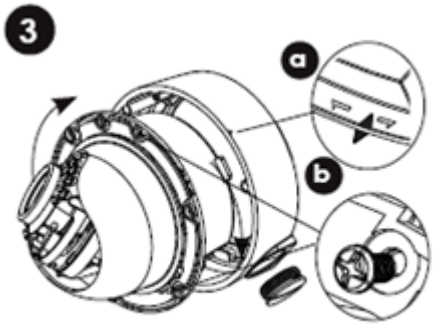
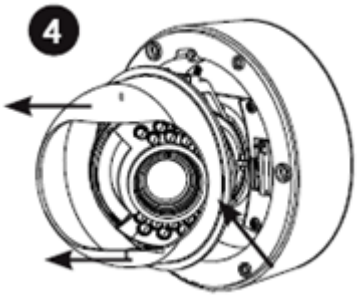
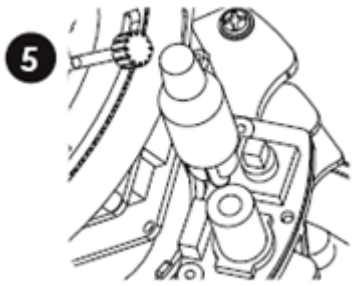
The camera has a waterproof container that allows it to be installed outdoors without protections.
The camera base must be fixed to the wall or ceiling with the 3 anchors provided.
The word TOP is indicated on the ring to indicate the side to be held up. The cables can pass behind the bracket or exit laterally through the downward slit in the bracket.
The camera bracket is equipped with a fixing ring which must be loosened by hand. We then proceed to orient the camera which is free to rotate on the 3 axes. Once the correct position is found, the locking ring nut is tightened securely. A solid hand tightening is sufficient, without using any tools.
To further consolidate the position of the joint, it is also possible to tighten the retaining screw located on the joint.
Finally, adjust the sun visor with the screw placed on the roof.

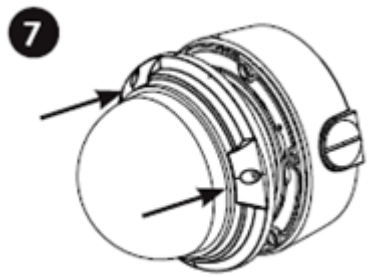
# **RH-DCCxxx**- 30 m IR waterproof camera.


**MOUNTING THE CAMERA**

The camera is closed in a vandal-proof waterproof container that can be installed on the ceiling both indoors and outdoors. The camera is made up of 3 distinct parts: FIXING BASE, CHAMBER BODY AND DOME COVER. First you need to separate the 3 elements. The cap is fixed with star screws (key supplied) and the chamber body with cross screws.

| | |
|---|---|
| 1  | Remove the tamper-proof star screws that secure the dome housing with the key provided. If you plan to use the lateral cable access, unscrew the cap with the key provided.  |
| 2  | Remove the Phillips screws that join the camera body with the fixing base. |

| | |
|---|---|
|  | Fasten the fixing base to the ceiling with dowels using the drilling template provided. Different fixing options with 2 or more anchors are available. |
|  | Once the base has been fixed to the ceiling, make the electrical connection and reinsert the body of the chamber, paying attention to the fixing tabs and turning clockwise.<br>Orient the camera towards the target to be filmed Tighten the cross fixing screws. |
|  | The camera is equipped with a masking cover which prevents you from seeing the camera from the outside. Remove the plastic masking cap by pressing on the arrow. |
|  | Insert the TEST VIDEO cable supplied in the connector provided on the board. The cable ends with a BNC connector to which a monitor for lens adjustment can be connected. |
|  | There are 2 adjustment screws on the lens that allow you to change the FOCAL and FOCUS of the lens. Note that the screws must first be unscrewed with a slotted screwdriver to release movement. At the end of the adjustment retighten the screws to avoid unwanted lens movements. |

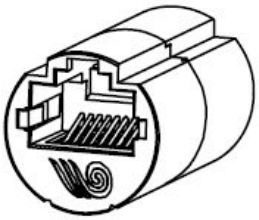
| | |
|---|---|
|  | Close the container by mounting the dome dome. |

**CONNECTIONS**

The connections are placed on the cable that comes out of the camera

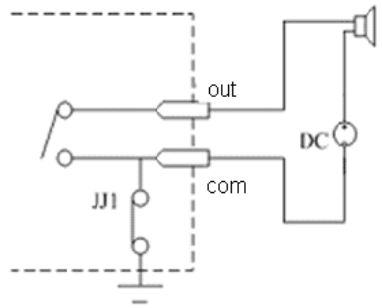
The cable with the connections is 40 cm long and is used to reach a protected box to be arranged so as to house the connectors inside.

- AUDIO IN - MICROPHONE INPUT - The camera is equipped with a 3.5 mm minijack to connect an external microphone. (Impedance 1 KOhm)
- AUDIO OUTPUT - 3.5mm minijack allows you to connect local speakers. This function allows you to create a two-way audio conversation between the person in front of the camera and the operator in front of the client PC. (Upper impedance 16 Ohm)
- SLOT Micro SD CARD - The slot to insert a Micro SD card (max 64GB) to save images on board the same camera is located on the card behind the lens.
- 12VDC - Plug to connect the 220VAC / 12VDC power supply (not included). Alternatively, it is possible to power the camera in POE directly from the network if the network switch supports this functionality.
- RJ45 (NETWORK) - MALE RJ45 connector to connect the network. For connection to a HUB or network switch use a normal LAN cable. To connect only one PC directly, use a crossover cable.The RJ45 female-female adapter is provided to connect a cable with a male connector.

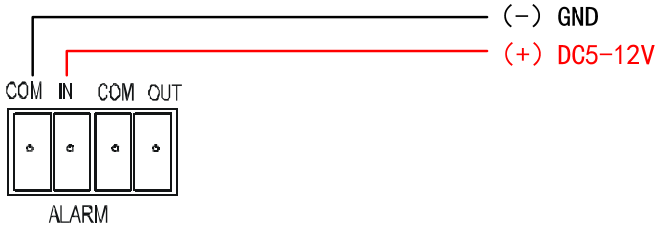


- RS485 - (TX + / TX- / RX + / RX-) This port allows you to connect external units such as pan / tilt cameras or speed dome cameras to control them via the camera's web interface. Supported protocols Pelco P / D.
- ALARM IN / OUT - An input with a voltage between 5 and 12VDC can be connected to the alarm input between the IN and COM terminals. During programming it is possible to define whether the alarm is considered to be present or in the absence of voltage. The alarm output is used to operate external devices such as horns or lights. The contact is of the ON / OFF type with a maximum directly controllable load of 300mA at 12VDC. During programming it is possible to set the operation (NO / NC), any intermittence, and the activation duration in the event of an alarm.

  Example of output connection




Example of input connection



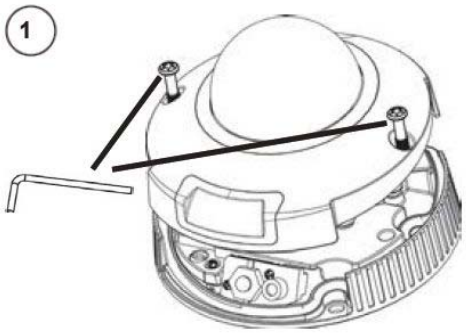
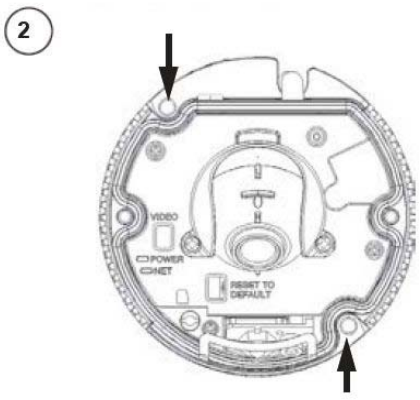

- VIDEO OUT - Output to connect analog monitors. For example, it allows you to connect a portable monitor so that you can focus on the lens comfortably after mounting. It is placed on the camera card near the SD card slot.ATTENTION: this output may not be active if disabled in the camera configuration.
- RESET - Button to reset the factory parameters. It is placed on the camera card next to the SD card slot. Press and hold for at least 5 seconds to restore factory settings including network data.

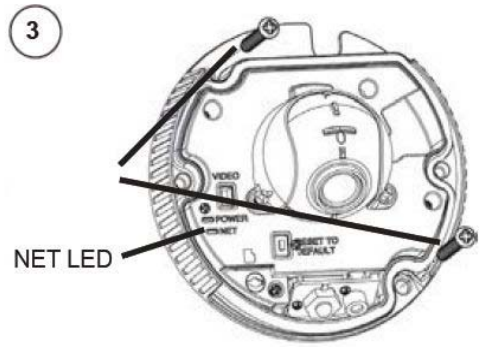
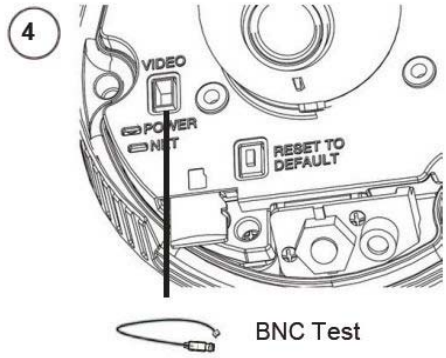
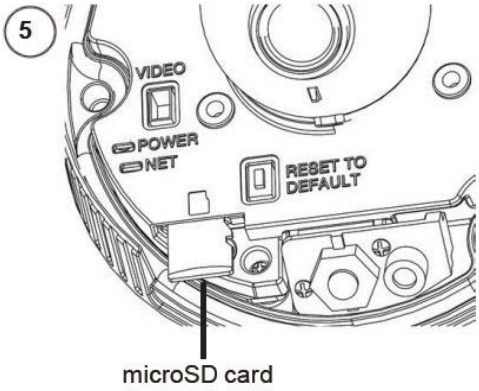
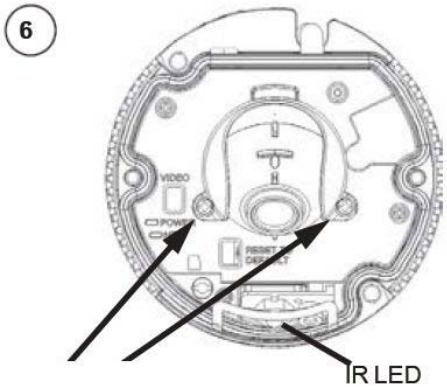
# **RH-DCC2 RH2-DCC2**- Waterproof IR camera 6 m.

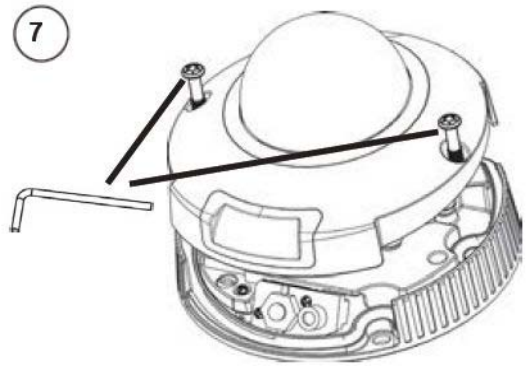
# **RH2-BCC2** 15 m IR waterproof camera.

**MOUNTING THE CAMERA**

The RH-DCC2 and RH2-DCC2 mini dome cameras are closed in a waterproof container that can be installed on the ceiling both indoors and outdoors by proceeding as follows.

| | |
|---|---|
|  | Remove the Allen screws that open the dome housing with the key provided. |
|  | On the base of the camera there are 2 fixing holes through which it is possible to fix the camera to the ceiling with dowels. The drilling template is also supplied with which it is possible to easily mark the points where to drill. |

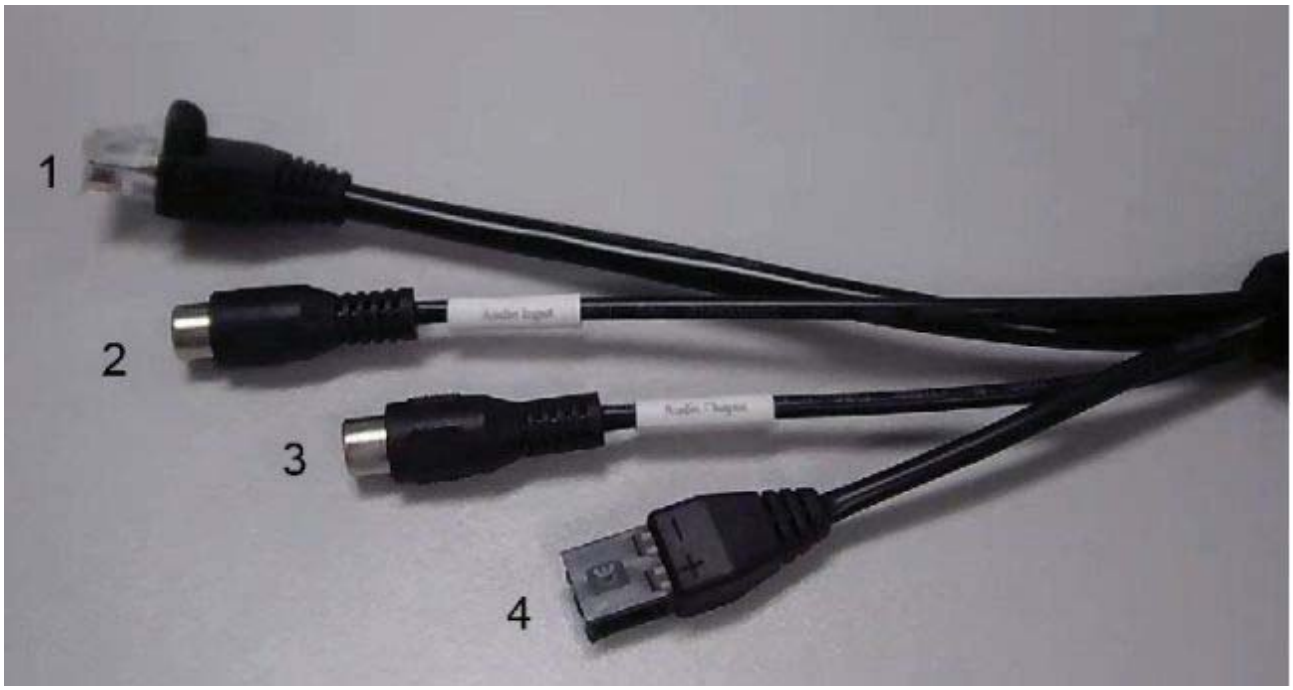
| | |
|---|---|
|  | Fix the fixing base to the ceiling after connecting the connections. Cable exit can take place on the back of the container or on the side. |
|  | Insert the BNC cable into the connector and connect a service monitor to conveniently adjust the focus and position of the lens. |
|  | If required, insert the micro SD card (max 64 GB) into the slot. |
|  | Loosen the two screws indicated in order to orient the camera and obtain the best shot. DO NOT REMOVE the screws, simply loosen them and then tighten them again to lock the camera. If necessary, change the focus of the lens by turning it appropriately. |

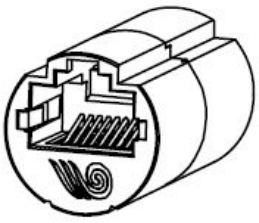
| | |
|---|---|
|  | Close the container by tightening the screws. |

**CONNECTIONS**

The connections are placed on the cable that comes out of the camera

The cable with the connections is 40 cm long and is used to reach a protected box to be arranged so as to house the connectors inside.



- **1**- RJ45 (NETWORK) - MALE RJ45 connector to connect the network. For connection to a HUB or network switch use a normal LAN cable. To connect only one PC directly, use a crossover cable.The RJ45 female-female adapter is provided to connect a cable with a male connector.
- **2**- AUDIO IN - MICROPHONE INPUT - The camera is equipped with a female RCA connector to connect an external microphone. (not available on RH2-BCC2)
- **3**- AUDIO OUT - AUDIO OUT - Female RCA connector that allows you to connect local

speakers. This function allows you to create a two-way audio conversation between the person in front of the camera and the operator in front of the client PC (not available on RH2-BCC2) - Impedance sup. 16 Ohm

- **4**- 12VDC - Removable terminal blocks (5.5 mm plug on RH2-BCC2) to which to connect the 220VAC / 12VDC power supply (not included). Alternatively, it is possible to power the camera in POE directly from the network if the network switch supports this functionality.
- SLOT Micro SD CARD - The slot to insert a Micro SD card (max 64GB) to save images on board the same camera is located on the card inside the container.
- VIDEO OUT - Output to connect analog monitors for lens adjustment. For example, it allows you to connect a portable monitor so that you can focus on the lens comfortably after mounting. The connector is located on the camera card next to the SD card slot and allows you to insert the BNC cable supplied.ATTENTION: this output may not be active if disabled in the camera configuration.
- RESET - Button to reset the camera and reset the factory parameters. It is placed on the camera card next to the SD card slot. Press and hold for at least 5 seconds to restore factory settings including network data.

# **RH2-TCC3**- Pin-hole camera

### MOUNTING THE CAMERA

The camera is closed in a protected but NOT watertight container that can be installed on the wall or ceiling. The camera is equipped with a bracket.

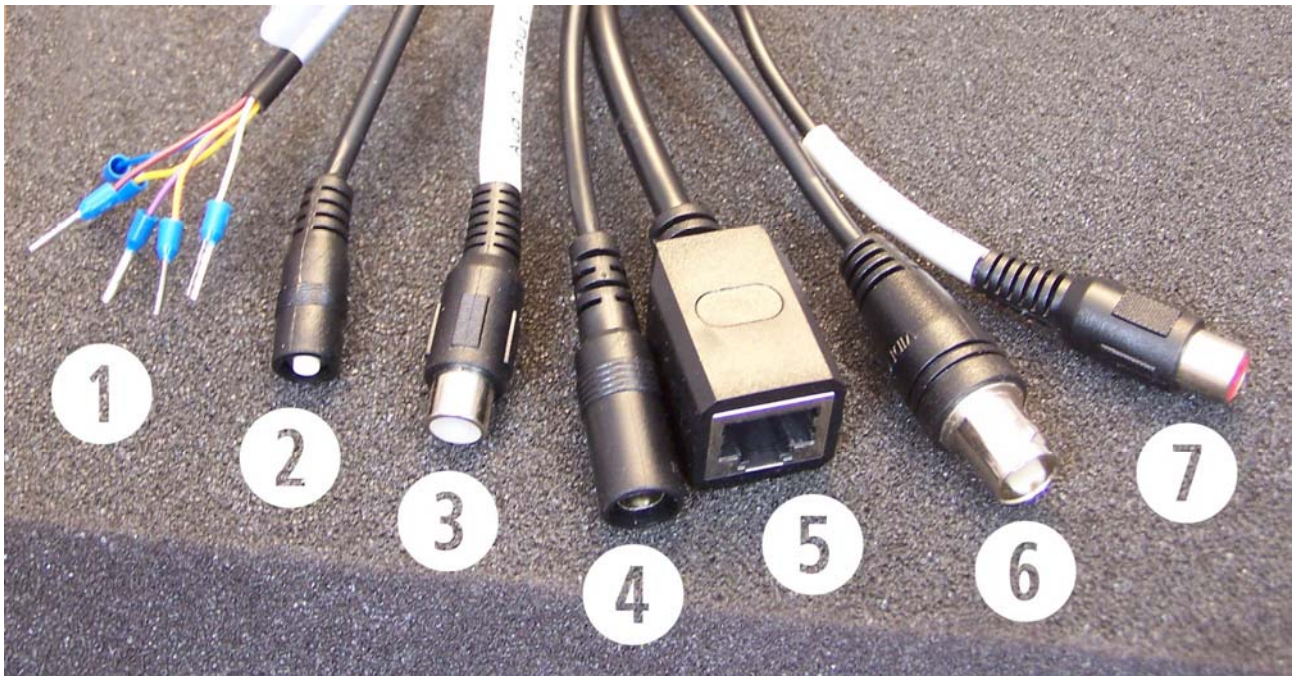
The mechanical assembly of the camera is carried out by simply screwing the bracket to the support with one or 2 screws. If you want to hide the camera it is necessary to prepare a hole of at least 1 mm. in diameter and place the lens behind the shooting hole.

### CONNECTIONS

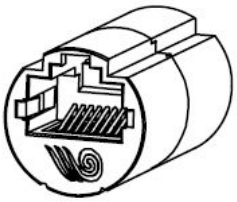
The connections are placed on the connection cable which is supplied separately.

First of all, connect the cable to the rear connectors located on the rear of the camera. Each connector has a different size and a unique sense of insertion.


The cable has the following connections:




| | Color | Function | Description |
|---|---|---|---|
| 1 | Orange<br>Yellow<br>Grey<br>Violet<br>Blue<br>Brown | ALARM IN COM<br>ALARM IN NO<br>ALARM OUT 2<br>ALARM OUT COM<br>RS485A<br>RS-485B | ALARM IN<br>It is used to initiate automatic camera actions with external contacts that may come from sensors, microcontacts, remote controls etc.<br>The contact connects between the input cable and the municipality (YELLOW / ORANGE). During programming it is possible to define whether the alarm is considered closed or open.<br>ALARM OUT<br>It is used to activate external devices with max voltage 24VAC / 48VDC and current up to 1 A. During programming it is possible to set the operation (NO / NC), any intermittence, and the activation duration in the event of an alarm.<br>RS485 A / B<br>This port allows you to connect external units such as pan / tilt or speed dome cameras to control them via the camera's web interface. Supported protocols Pelco P / D. |
| 2 | - | RESET button | Button to reset the camera and restore the factory parameters. Press and hold for at least 5 seconds to |

| | | | |
|---|---|---|---|
| | | | restore factory settings including network data. |
| 3 | RCA White | AUDIO IN | MICROPHONE INPUT - The camera is equipped with a female RCA connector to connect an external microphone. |
| 4 | - | 12VDC | 12VDC power supply to be connected to the 220VAC / 12VDC power supply not supplied.<br>This camera does not support POE power |
| 5 | - | RJ45 (NETWORK) |  <br>RJ45 MALE connector to connect the network. For connection to a HUB or network switch use a normal LAN cable. To connect only one PC directly, use a crossover cable.The RJ45 female-female adapter is provided to connect a cable with a male connector. |
| 6 | - | VIDEO OUT | Female BNC video output - Analog video output in PAL format to connect a service monitor or analog recording or display devices |
| 7 | Red RCA | AUDIO OUT | AUDIO OUT - Female RCA connector that allows you to connect local speakers. This function allows you to create a two-way audio conversation between the person in front of the camera and the operator in front of the client PC. (Upper impedance 16 Ohm) |

# **RH-SD22xxx**- Speed dome camera


## MOUNTING THE CAMERA

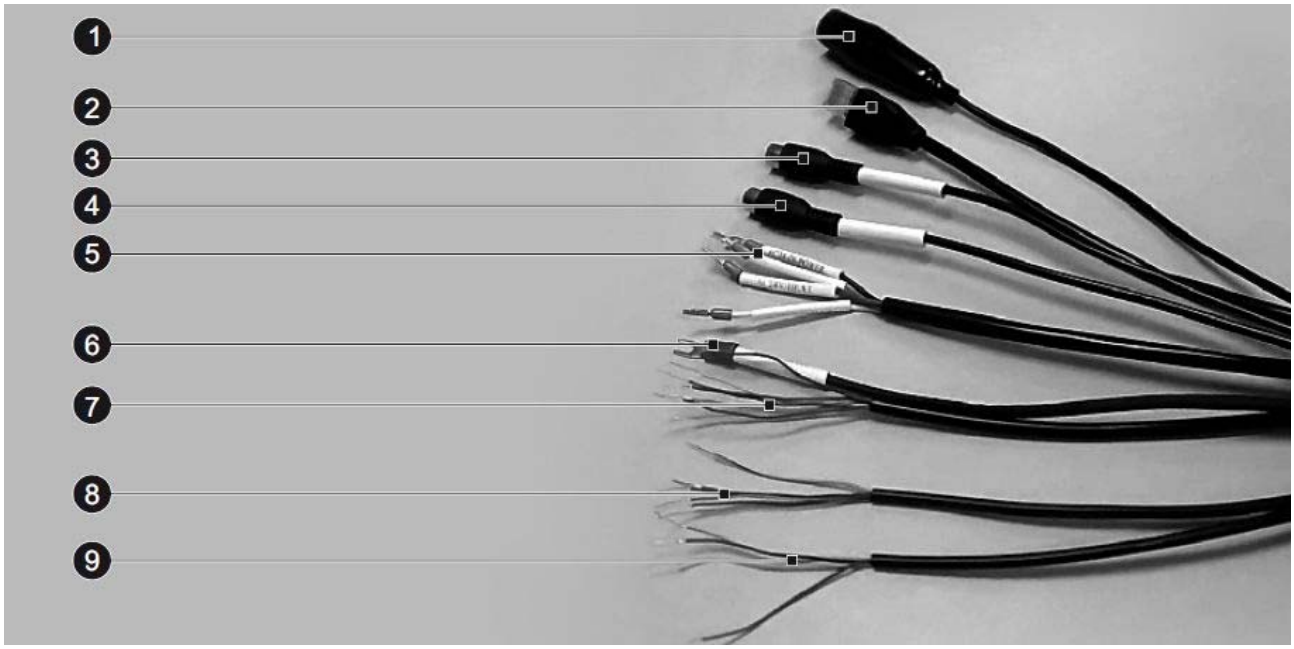
The camera is closed in a waterproof container that can be installed on the wall both indoors and outdoors. The camera is equipped with a bracket that allows the passage of the cables inside it. The bracket also allows you to house the connectors inside. Assembly is done in a few simple steps

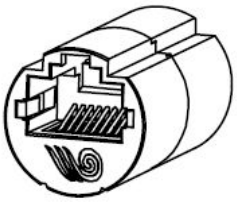
1 - Drill the wall according to the hole in the bracket: center distance 85 mm. (L) x 140 mm. (H)
2 - Screw the sleeve with the bayonet fitting for the dome onto the bracket. Screw a retaining Allen screw (among the 4 provided) into the bracket to prevent unscrewing.
3 - Pass the connection cables of the speed-dome through the bracket and let them come out from the back
4 - Connect the connections (see below) and fix the bracket to the wall with 4 dowels
5 - Hook the dome to the bracket in the bayonet coupling by turning it clockwise.
6 - Tighten the 3 remaining retaining screws between the bracket and the dome to complete the fixing.

## CONNECTIONS

The connections are placed on the cable that comes out of the camera
The cable with the connections is about 1 m long and is used to reach a protected box to be

arranged so as to house the connectors inside. Alternatively, the connectors can be housed in the rear recess of the wall bracket.

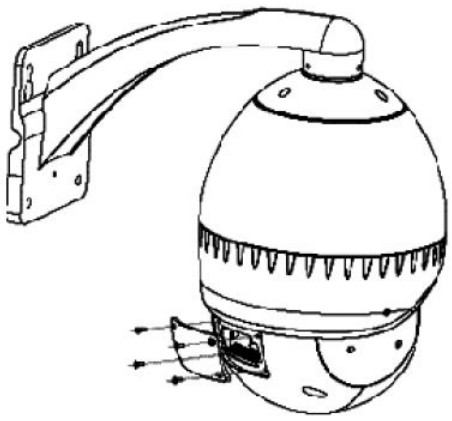



| | Color | Function | Description |
|---|---|---|---|
| 1 | - | VIDEO OUT | Female BNC video output - Analog video output in PAL format to connect a service monitor or analog recording or display devices |
| 2 | - | RJ45 (NETWORK) | RJ45 MALE connector to connect the network. For connection to a HUB or network switch use a normal LAN cable. To connect only one PC directly, use a crossover cable.The RJ45 female-female adapter is provided to connect a cable with a male connector.  |
| 3 | Red RCA | AUDIO OUT | AUDIO OUT - Female RCA connector that allows you to connect local speakers. This function allows you to create a two-way audio conversation between the person in front of the camera and the operator in front of the client PC. (Upper impedance 16 Ohm) |
| 4 | RCA White | AUDIO IN | MICROPHONE INPUT - The camera is equipped with a female RCA connector to connect an external microphone. |

| | | | |
|---|---|---|---|
| 5 | Red-black<br>Blue White | 24VAC | 24VAC power supply to be connected to the supplied 220VAC power supply<br>Red / Black: camera power supply<br>Blue / White: internal fan / heater power supply |
| 6 | - | GND | Ground socket |
| 7 | Yellow<br>Orange<br>Gray<br>Blue<br>Purple<br>Brown<br>Green | ALARM OUT 2<br>ALARM OUT 2<br>ALARM IN 7<br>ALARM IN 6<br>ALARM IN 5<br>ALARM IN 4<br>ALARM IN 3 | 7 ALARM INPUTS (1..7).<br>They are used to initiate automatic camera actions with external contacts that may come from sensors, microcontacts, remote controls etc.<br>The NO or NC contacts are connected between the input cable and the common (PINK / BLACK). During programming it is possible to define whether the alarm is considered closed or open.<br><br>2 ALARM OUTPUTS<br>They are used to activate external devices with max voltage 24VAC / 48VDC and current up to 1 A. During programming it is possible to set the operation (NO / NC), any intermittence, and the activation duration in the event of an alarm. |
| 8 | Pink + N<br>Orange + N<br>Gray + N<br>Blue + N<br>Viola + N | ALARM COM<br>ALARM IN 1<br>ALARM IN 2<br>ALARM OUT 1<br>ALARM OUT 2 | |
| 9 | Marr. + N<br>Green + N<br>Yellow + N<br>Pink | RS485 TX-<br>RS485 TX +<br>RS485 RX-<br>RS485 RX + | Auxiliary port RS485<br>This port allows you to connect external units such as pan / tilt or speed dome cameras to control them via the camera's web interface. Supported protocols Pelco P / D. |

**REAR DOOR**

A small watertight door is placed behind the mobile part of the camera and can be opened by unscrewing the 4 fixing screws. Inside are placed:



- RESET - Button to reset the factory parameters. Press and hold for at least 5 seconds to restore factory settings including network data.
- MICRO SD CARD SLOT - It is possible to insert an SD card up to 64 GB for storing local films.

Other microswitches that are inside the flap are not used in this model.

## **RH-SD30xxx**- Speed dome camera

### MOUNTING THE CAMERA

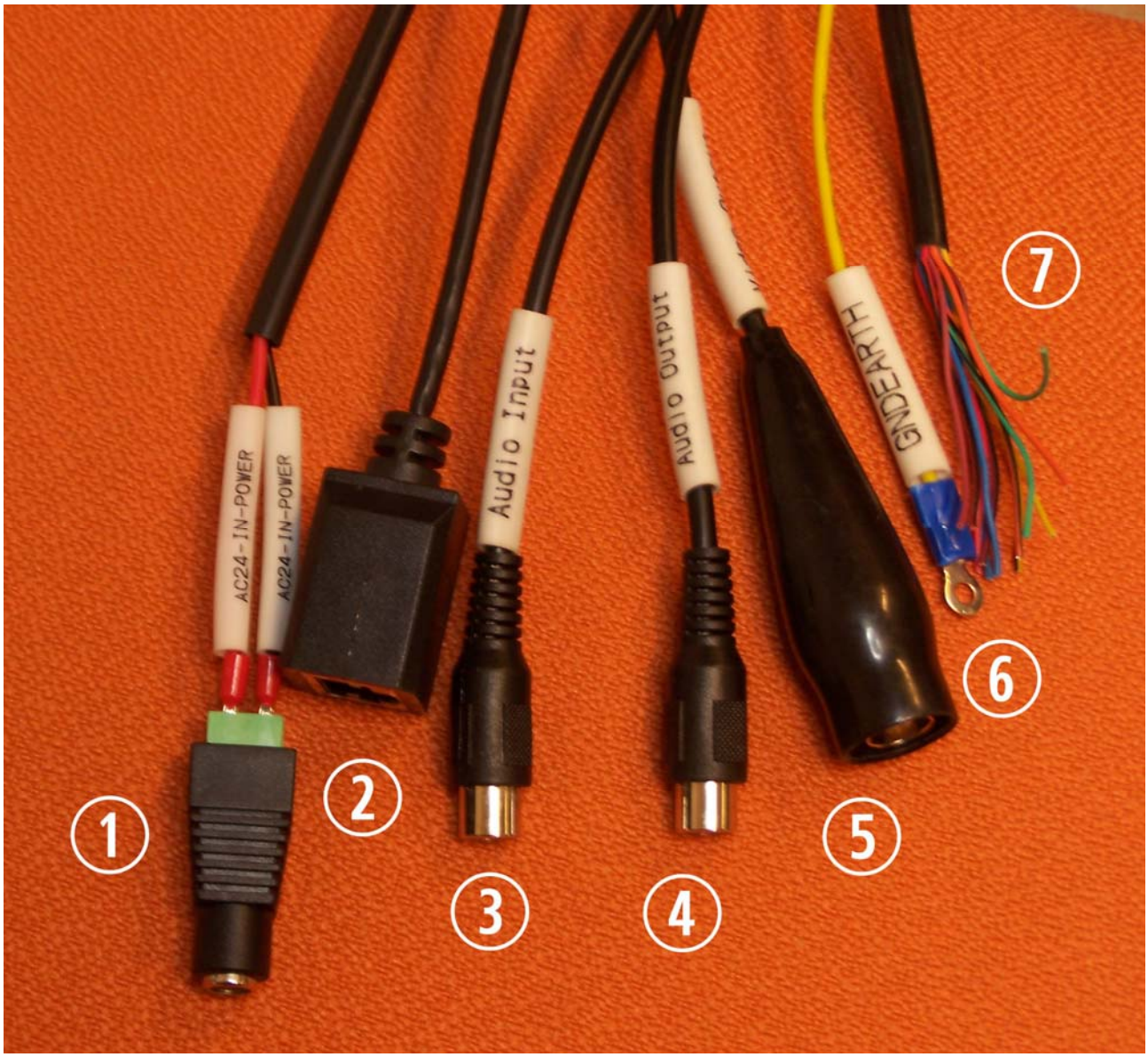
The camera is closed in a waterproof container that can be installed on the wall both indoors and outdoors. The camera is equipped with a bracket that allows the passage of the cables inside it. The bracket also allows you to house the connectors inside. Assembly is done in a few simple steps

1 - Drill the wall according to the hole in the bracket: center distance 78.3 mm. (L) x 100 mm. (H)
2 - Pass the speed-dome connection cables through the bracket and extend them from the rear
3 - Connect the connections (see below) and fix the bracket to the wall with 4 dowels
4 - Hook the dome to the bracket
5 - Tighten the retaining screws between the bracket and dome to complete the fixing.

### CONNECTIONS

The connections are placed on the cable that comes out of the camera
The cable with the connections is about 1 m long and is used to reach a protected box to be arranged so as to house the connectors inside. Alternatively, the connectors can be housed in the

rear recess of the wall bracket.




| | Color | Function | Description |
|---|---|---|---|
| 1 | Red-black | 24VAC | 24VAC power supply to be connected to the supplied 220VAC power supply |
| 2 | - | RJ45 (NETWORK) | RJ45 FEMALE connector to connect the network. For connection to a HUB or network switch use a normal LAN cable. To connect only one PC directly, use a crossover cable. |
| 3 | RCA White | AUDIO IN | MICROPHONE INPUT - The camera is equipped with a female RCA connector to connect an external |

| | | | |
|---|---|---|---|
| | | | microphone. |
| 4 | Red RCA | AUDIO OUT | AUDIO OUT - Female RCA connector that allows you to connect local speakers. This function allows you to create a two-way audio conversation between the person in front of the camera and the operator in front of the client PC. (Upper impedance 16 Ohm) |
| 5 | - | VIDEO OUT | Female BNC video output - Analog video output in PAL format to connect a service monitor or analog recording or display devices |
| 6 | - | GND | Ground socket |
| 7 | Orange<br>Orange / Black<br>Yellow<br>Yellow black<br>Green<br>Green Black<br>Blue<br>Blue / Black | ALARM IN 1<br>ALARM IN 2<br>ALARM IN 3<br>ALARM IN 4<br>ALARM IN 5<br>ALARM IN 6<br>ALARM IN 7<br>ALARM IN COM | 7 ALARM INPUTS (1..7).<br>They are used to initiate automatic camera actions with external contacts that may come from sensors, microcontacts, remote controls etc.<br>The NO or NC type contacts are connected between the input cable and the common (BLUE / BLACK). During programming it is possible to define whether the alarm is considered closed or open. |
| | Brown<br>Brown / Black<br>Red<br>Red-black | ALARM OUT 1<br>ALARM 1 COM<br>ALARM OUT 2<br>ALARM 2 COM | 2 ALARM OUTPUTS<br>They are used to activate external devices with max voltage 24VAC / 48VDC and current up to 1 A. During programming it is possible to set the operation (NO / NC), any intermittence, and the activation duration in the event of an alarm. |
| - | Yellow<br>Green | RS485-<br>RS485 + | Auxiliary port RS485<br>This port allows you to connect external units such as pan / tilt or speed dome cameras to control them via the camera's web interface. Supported protocols Pelco P / D. |

**INTERNAL EQUIPMENT**

Inside the camera there are some additional equipment of the device. To access it, you must remove the front of the camera

- RESET - Button to reset the factory parameters. Press and hold for at least 5 seconds to

restore factory settings including network data.

- MICRO SD CARD SLOT - It is possible to insert an SD card up to 64 GB for storing local films.

## **RH2-CB1W RH2-PT1W**- Wi-Fi cameras


### MOUNTING THE CAMERA

Wifi cameras are cameras for indoor use. They are equipped with a support base that allows you to use them simply resting on a surface but wall mounting is also possible.

RH2-CB1W - To mount this camera on the wall, first separate the fixing base from the bracket by gently levering it with a flat screwdriver in correspondence with the 3 coupling tabs. Then fix the black plastic base to the wall with the 3 anchors provided. For the correct execution of the holes, a convenient drilling template is included. The camera is mounted on a fully adjustable joint.

RH2-PT1W - To mount this camera on the wall, fix the two anchors supplied to the wall using the drilling template included as a reference. Tighten the screws of the plugs, but not to the bottom in order to leave the screw head at a distance of a few mm from the wall. Hook the camera onto the 2 screws making sure that the brim of the screws fits into its slot. If necessary, adjust the distance of the screws from the wall until solid fixing.

### CONNECTIONS

The connections are placed on the back of the cameras. In the photo, for example, the model RH2-CB1W


- DC5V - Plug to connect the 220VAC / USB 5VDC power supply (included). You can also use a USB port on a PC with the cable provided. These models do not support POE power supply as they are designed to operate even in the absence of a network cable.
- NET (NETWORK) - RJ45 connector to connect the network. For connection to a HUB or network switch use a normal LAN cable. To connect only one PC directly, use a crossover cable. These cameras can work both with wired network connection and wireless Wi-Fi. Note that even if using wifi, the wired connection is however indispensable initially for the configuration.
- SLOT Micro SD CARD - The slot to insert a Micro SD card (max 64GB) to save images on the same camera is located on the side of the camera.
- POWER - This red LED on indicates the presence of 5VDC power supply
- NET - This flashing green led indicates network connection present
- RESET - The button to reset the factory parameters, including the network parameters. Press and hold for at least 15 seconds to restore factory settings including network data.
- WPS - This button is available to connect to wifi networks that use the WPS (Wifi Protected Setup) security standard

# Network configuration

After supplying the camera with a 12VDC power supply or via POE and after connecting the network, it is necessary to configure the network parameters in order to make the cameras accessible from the network PCs. The cameras are supplied with the factory address 192.168.0.120

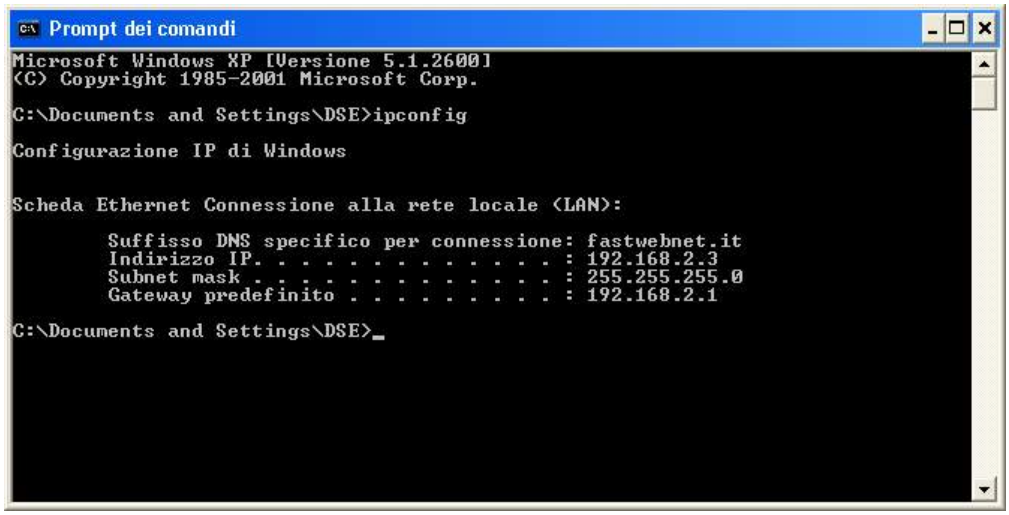
## IPSEARCH SOFTWARE

The CD supplied with the camera includes the IPSEARCH software which does not require installation and can be easily launched on any PC on the network. The function of this software is to detect the presence of the camera on the network whatever its address and allow you to configure the network address of the camera in order to be consistent with your network. In fact, remember that in order for the camera to be visible from the other PCs in the network, the first 3 parts of the IP address must be the same as the other network PCs and the subnet mask must also be the same. It is advisable to network one camera at a time and insert new ones only after configuring the previous ones.

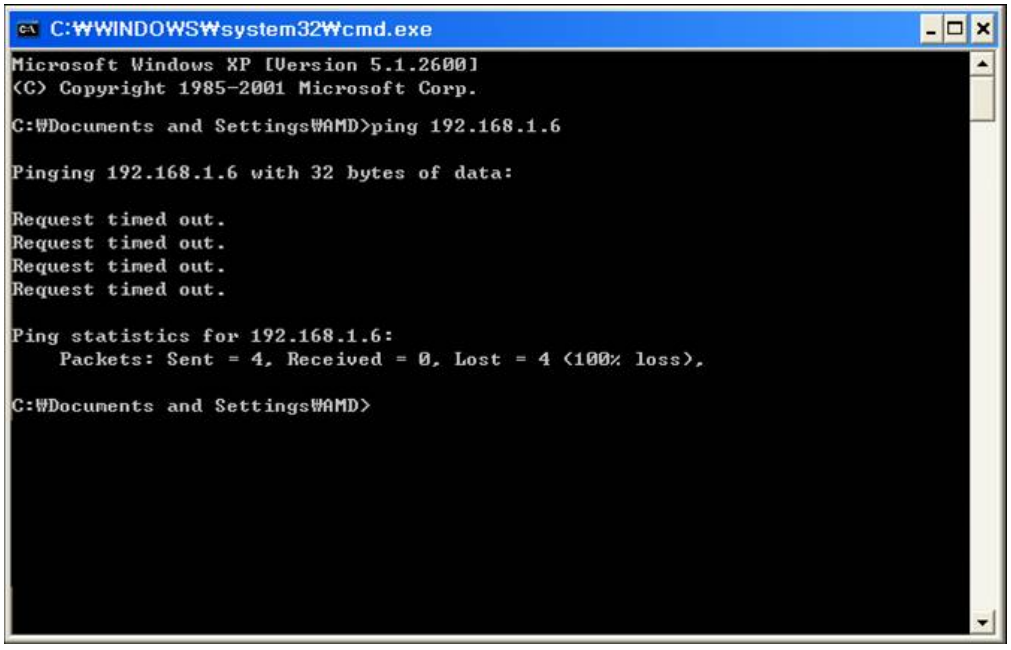
## PRELIMINARY CHECKS

Before proceeding, you need to obtain some information from the network administrator about the management of the IP addresses used in your network. It is necessary to know an IP address that can be assigned to the camera which is not the same as any other device already on the network. If you are unsure of how your network works, you can use some commands in the PROMPT DOS

On a network PC, launch a DOS window available among the windows accessory programs. Type IPCONFIG in the command prompt and press ENTER. The TCP / IP parameters will appear. The second line is the IP address assigned to your computer.



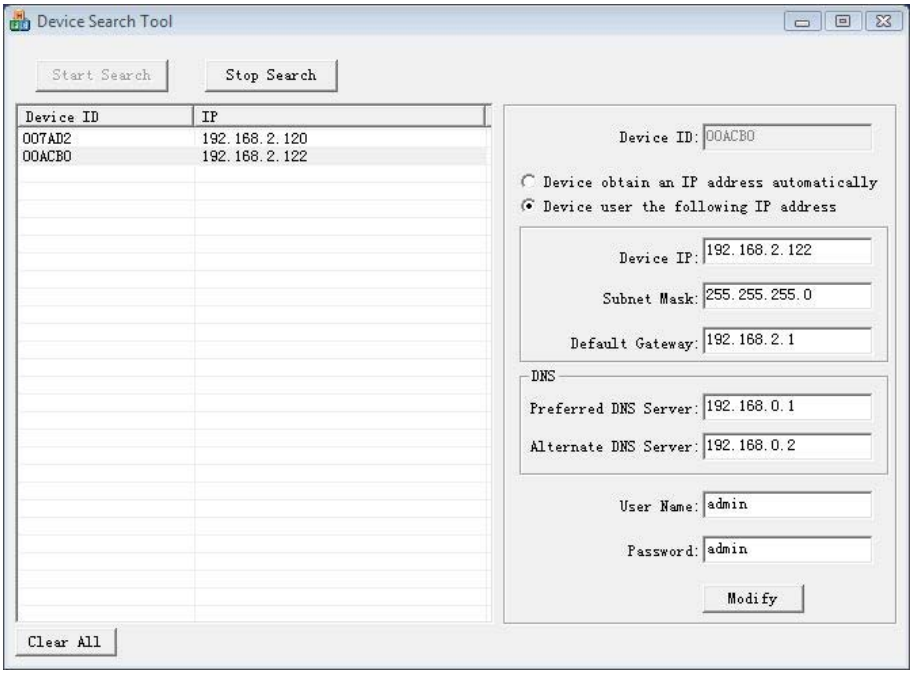

In the example above the address of the PC being worked on is 192.168.2.3 and the subnet mask used is the classic 255.255.255.0. The camera can therefore assign an address of your choice of the type 192.168.2.XXX, where XXX stands for a number between 0 and 255.
It is important to choose an address that is not already used by other network equipment. To verify that the chosen address is free, try to perform a PING from the same DOS window by typing PING followed by a space and the IP you wish to assign to the camera. If there is no device responding to that address, you will receive 4 REQUEST TIME OUT as in the following example:




All cameras support automatic assignment of the IP address by a DHCP server. However, this mode is not recommended because in the event of a power failure or a restart of the equipment, the cameras may change the IP address making it necessary to reconfigure the recording software.

## USE OF IPSEARCH TO ASSIGN THE IP ADDRESS

1. Insert the CD into a PC drive and explore the contents. You will find a folder called IPSEARCH with some files inside. IP SEARCH does not require installation. Double click on the IPSEARCH.EXE icon and the program will start.
   It is possible to copy this folder to a USB stick in order to easily run the program on any PC on the network.




2. Click on the START SEARCH button. The program will begin to search for RH series IP cameras on the network. Wait for the search to complete. IP search is also able to detect cameras with an address class different from that of the PC on which it is operating.
3. At the end of the search, the list of detected cameras will appear. If the camera has not been detected, check the functionality of the network connections. Each camera is distinguished by a unique ID that is inherent in the device. The current IP address of the camera appears alongside. The section on the right contains all the other network parameters and access passwords.
4. Particularly important are the IP address (DEVICE IP) which must have the same class as the network (first three groups of equal digits) and the SUBNET MASK which must be the same used by the network (generally 255.255.255.0). You can edit the network parameters as you like by writing in the boxes.
5. Press MODIFY to transfer the configuration to the camera.

## INDICATION OF IP ADDRESS ON BNC OUTPUT

If you connect a monitor to the service video output (where present), the IP address of the camera will be superimposed.

## NETWORK CONNECTION WIFI CAMERAS

To connect the cameras with integrated WiFi to your WiFI network, you must always initially connect the camera in a wired way and configure the network parameters as illustrated in this chapter. Once the wired connection has been configured, it will be possible to access the camera with the browser and enable Wi-Fi transmission by connecting to the nearest access point. This operation is explained in detail in the camera configuration manual. Only once the camera has obtained its wifi address will it be possible to remove the network cable and use the wireless camera.

The cameras with integrated WiFi have a WPS button to be used if the access point to connect to requires this security mode (Wifi Protected Setup)

# Access with browser

Once the network parameters have been correctly set, it is possible to access the camera for the first time using the internet browser you prefer, for example INTERNET EXPLORER, SAFARI, FIREFOX, CHROME etc.

## VLC MULTI BROWSER TECHNOLOGY

Unlike the majority of IP cameras on the market, RH cameras can communicate with the browser using VLC technology instead of traditional activeX. In this way you have several important advantages:

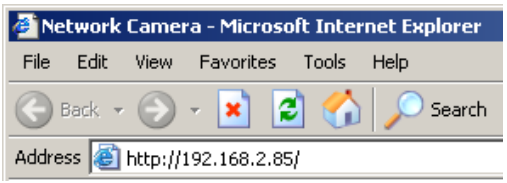
1 - Support of all internet browsers on the market and of all operating systems. You can connect with your favorite browser (Internet Explorer, Firefox, Chrome, Safari etc) and use any Windows or Mac operating system to access the cameras without having to change your habits.

2 - The web interface of the camera does not install external components (activeX) in the browser and therefore it is not necessary to intervene in the settings, reducing their safety parameters.

On the other hand, note that access with VLC technology does not allow all the camera control functions. For better control of your camera it is preferable to use the Internet Explorer browser with activeX as shown below.

## ACCESS WITH ANY BROWSER

To access the camera with the usual Internet browser, just type the address in the browser bar as in the following example:



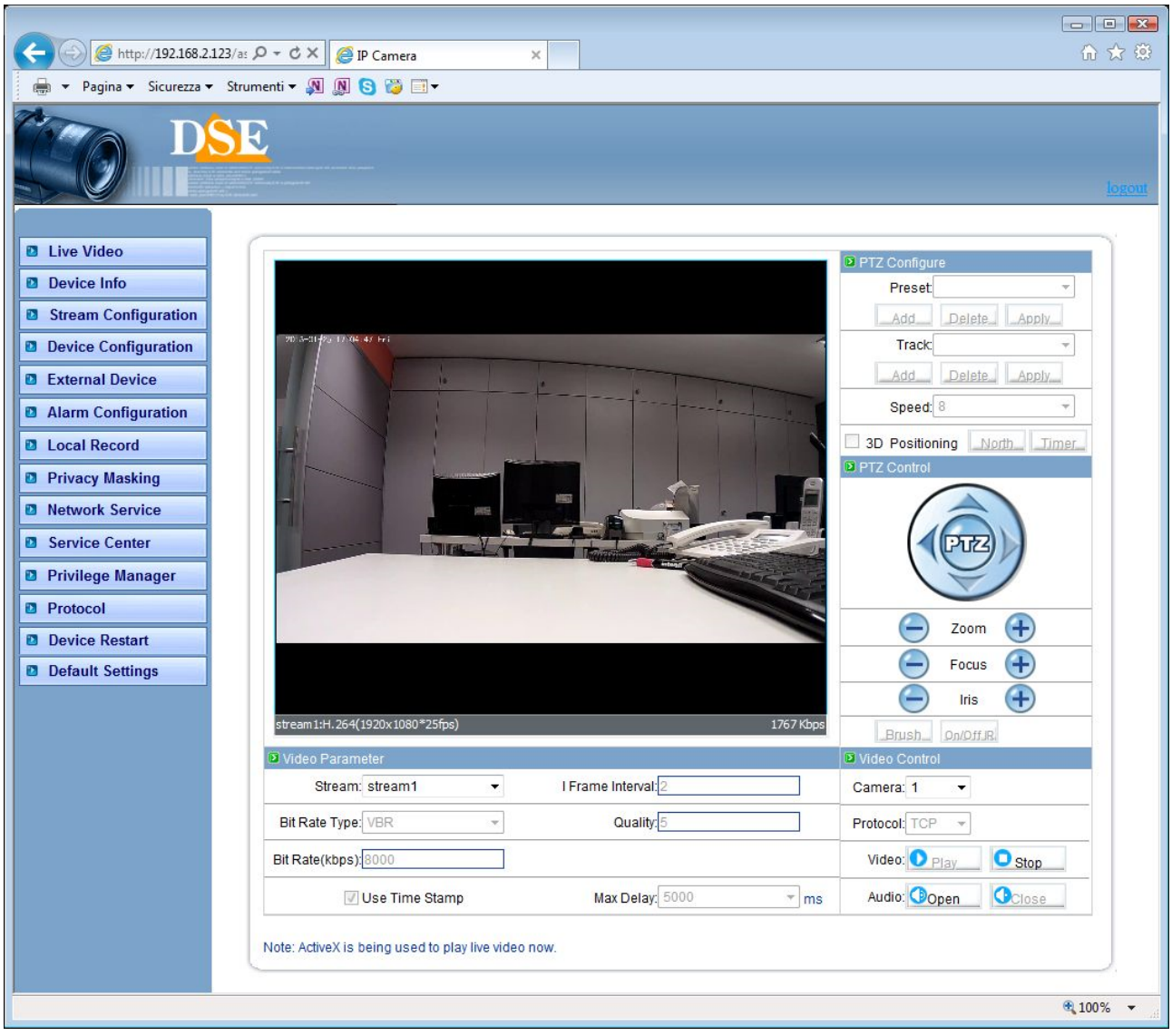

A log-in window will appear first where you can enter your username and password to log in.


The factory access data of the RH Series cameras are:

**USER NAME: admin**

**PASSWORD: admin**

You access the control mask of the camera.



On the left of the window are the camera configuration buttons which will be discussed in the specific manual. At the center is the real-time image.
In some models the programming part is separated from the live view and you can switch from one to the other by clicking on the upper tabs


By right-clicking on the live image, the following functions can be activated:
**FULL SCREEN** - To bring the live image of the camera to full screen without frame and command buttons, double click on the image and press ESC to exit.
**ZOOM IN / OUT**- Allows you to zoom in on the image. Alternatively, you can also draw a rectangle by dragging the mouse to zoom in the defined area.
**RESTORE PANORAMA** - Restores the overall vision by canceling all activated zooms
**SENSOR CONFIGURATION**- allows access to the configuration of the camera circuit by intervening on its programmable parameters. The detail is described in the specific manual.

To the right of the window are the PTZ controls that are used to control the motorized cameras. In some models, these commands are accessed with the PTZ button at the bottom

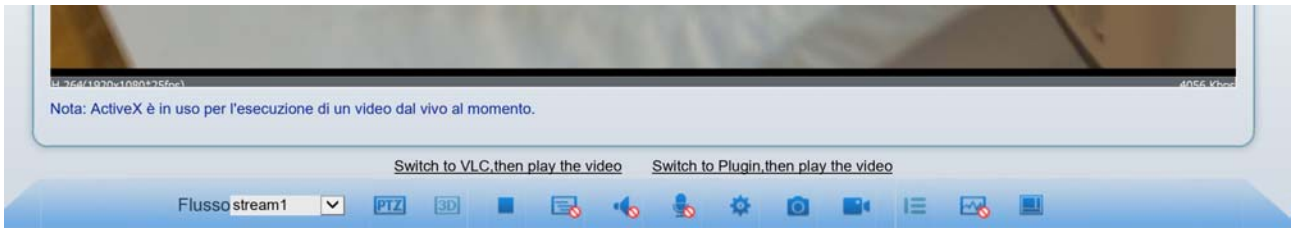

The details of these commands for motorized cameras are explained in the NetVMS management program manual.

Below you can choose which streaming among those set in the camera to use in live viewing based on your band availability.
ATTENTION - It is possible to connect several clients simultaneously up to a maximum of 10 clients per camera.

## ACCESS WITH INTERNET EXPLORER AND ACTIVE X BROWSER

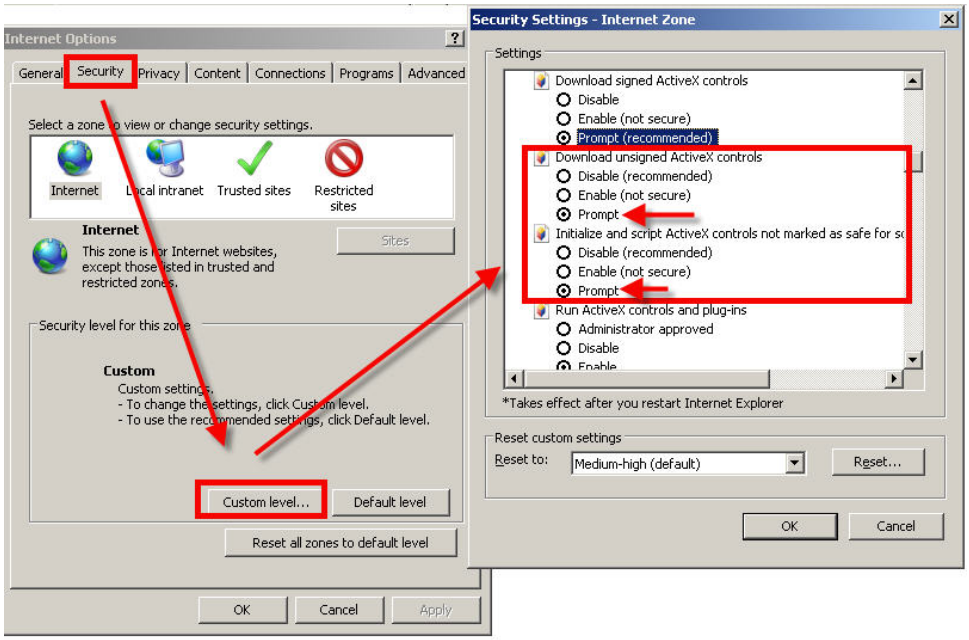
The use of VLC multi browser technology, in the face of great practicality, can increase latency in video streaming. This means that the images are visible on the screen with a small delay compared to the real event. Furthermore, some configurations are not available. The best way to minimize latency is to use the NetVMS software supplied with the cameras. When viewing with the browser, provided that you use Internet Explorer, you can reduce latency by switching from viewing with VLC to viewing with ACTIVEX which plans to install the control components in the browser. Access with ActiveX, in addition to reducing video latency, also allows 100% control of

the camera functions, unlike access with VLC where some advanced functions are not accessible. To switch from VLC display to ActiveX display, press the link under the video window. The ActiveX component will be installed. Access with Active X is not possible with browsers other than Internet Explorer.




**ATTENTION: Enable the execution of ActiveX**

Internet Explorer contains security settings that can prevent the installation of the ActiveX component. Before proceeding with the connection with activeX, it is necessary to enable the execution of ActiveX not marked as safe. In Internet Explorer choose INTERNET TOOLS / OPTIONS



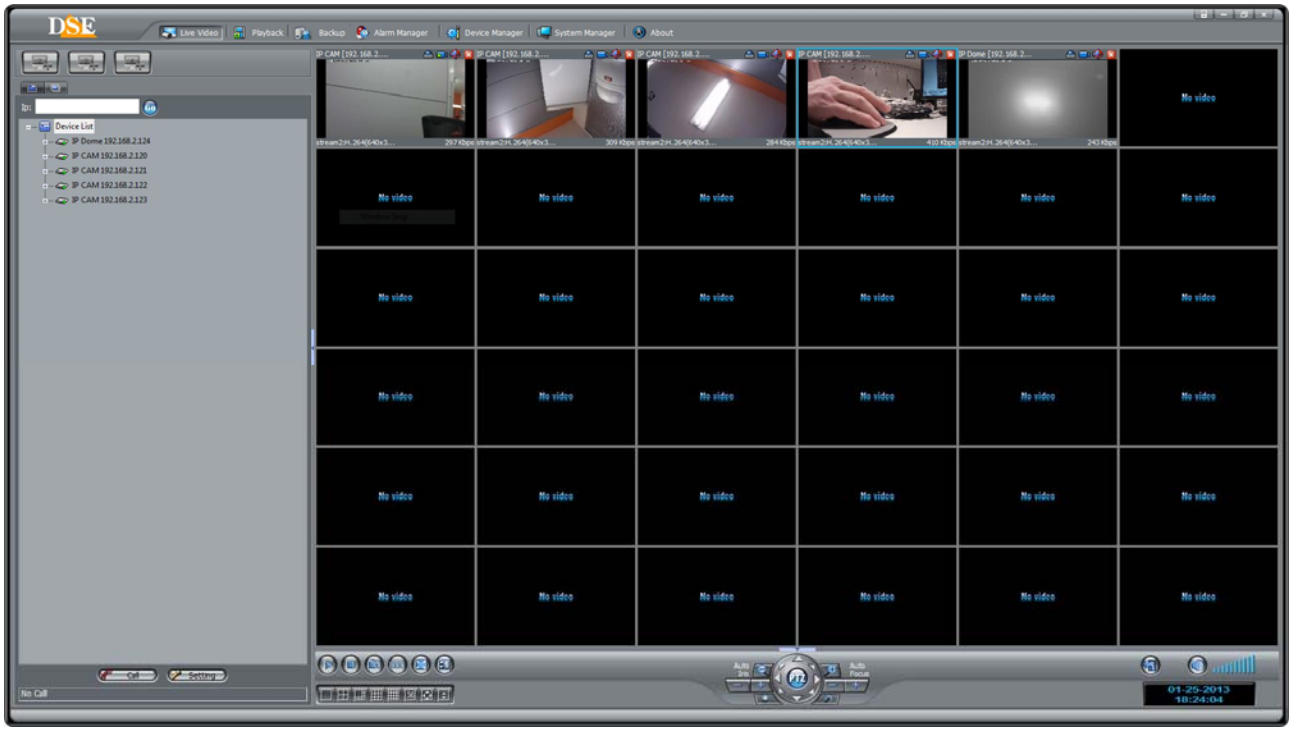

In the PROTECTION folder choose the area of interest (Internet or Local network) and click CUSTOM LEVEL. Enable all the items concerning the download to run ActiveX in particular those NOT marked as safe.

To return to the FLASH view, disable the PLAYEROCX component in the management of Internet

Explorer add-ons.

# Access with NVR software

Windows software is provided with each RH series camera for viewing and recording computer cameras. . The connection with software is certainly the most recommended way to manage your computer cameras both for the completeness of the functions, which go up to the complete remote configuration of the C-MOS sensor, and for the minimization of latency in live viewing.
A specific manual dedicated to the computer software is always contained on the CD attached to the camera.



# Access with DSE SmartLive

DSE has created the SMARTLIVE application for remote control of RH series cameras with smartphones. The application is available for APPLE iOS (iPhone / iPad) and ANDROID and allows complete control of the cameras until complete configuration.
It is possible to download applications for free from APP STORE and GOOGLE PLAY.


For instructions on installing and using DSE SmartLive see the specific manual included on the CD.

# Access with RTSP client

All RH series cameras support the RTSP protocol, universal standard in video streaming. It is possible to receive the RTSP video stream of the camera without using either the browser or the PC program, but directly with an RTSP player such as REAL PLAYER, QUICKTIME, VLC etc. Obviously this type of access allows only the live image to be viewed, without being able to access any type of command.

## RTSP

To connect with an RTSP reader, this syntax must be used
rtsp: // <IP address>: 554 / snl / live / 1 / <Stream ID>

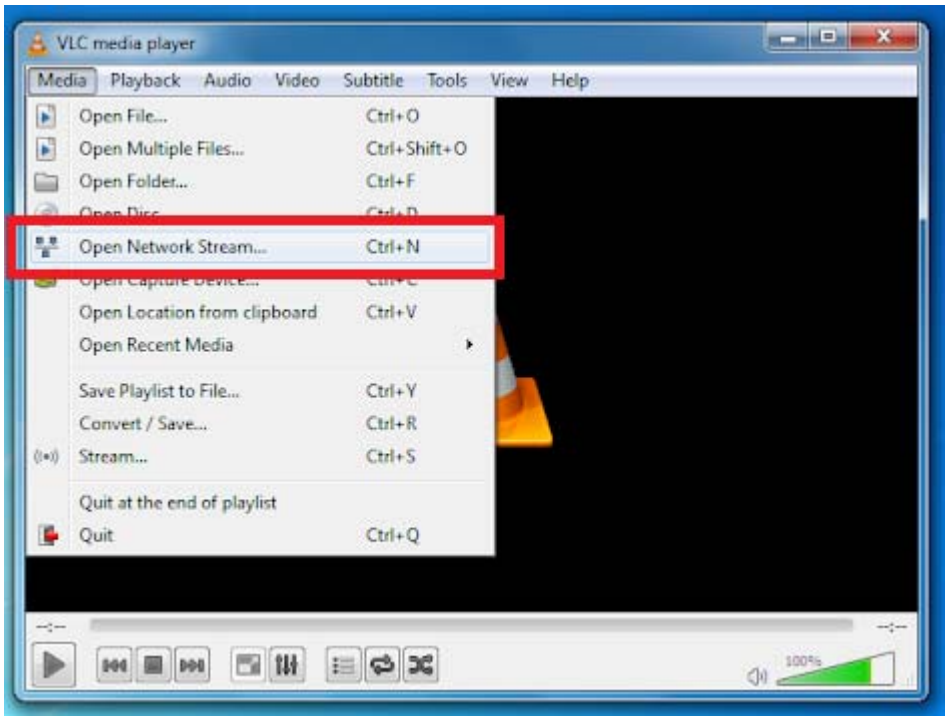
Enter the camera address in place of <IP address>. Instead of <StreamID> biosgna, enter 1.2 or 3 depending on which video stream you want to receive.
Here is an example to receive the main stream

Rtsp: //192.168.1.50: 554 / snl / live / 1/1

## RTSP READER

By way of example, we report how to operate using the free downloadable VLC player on the net. Similarly we will act with other RTSP readers.

- Select the OPEN NETWORK FLOW command




- Enter the address


- RTSP streaming starts directly from the camera

# Access with ONVIF software

The RH series cameras can be integrated with any software platform capable of accepting the international standard ONVIF protocol.

It is a universal protocol and DSE is part of the association that defines it.

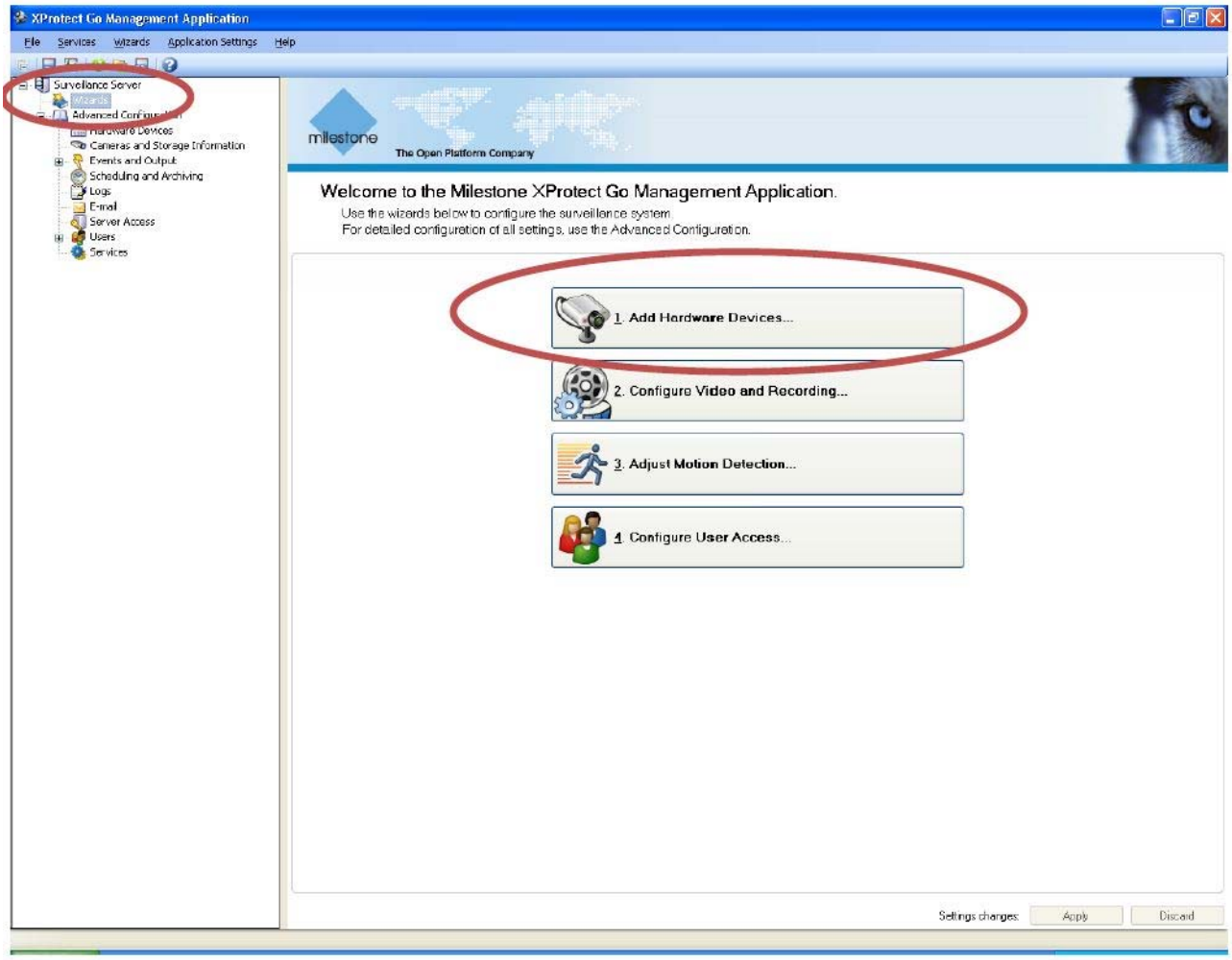
All RH series cameras support the ONVIF Profile SG protocol. Thanks to this standard, RH series cameras can be easily integrated in just a few steps. Below, as an example, we explain how to integrate RH series cameras into the MILESTONE program, one of the most popular NVR software on the market. Similarly, platforms from other manufacturers can be used

## MILESTONE XPROTECT

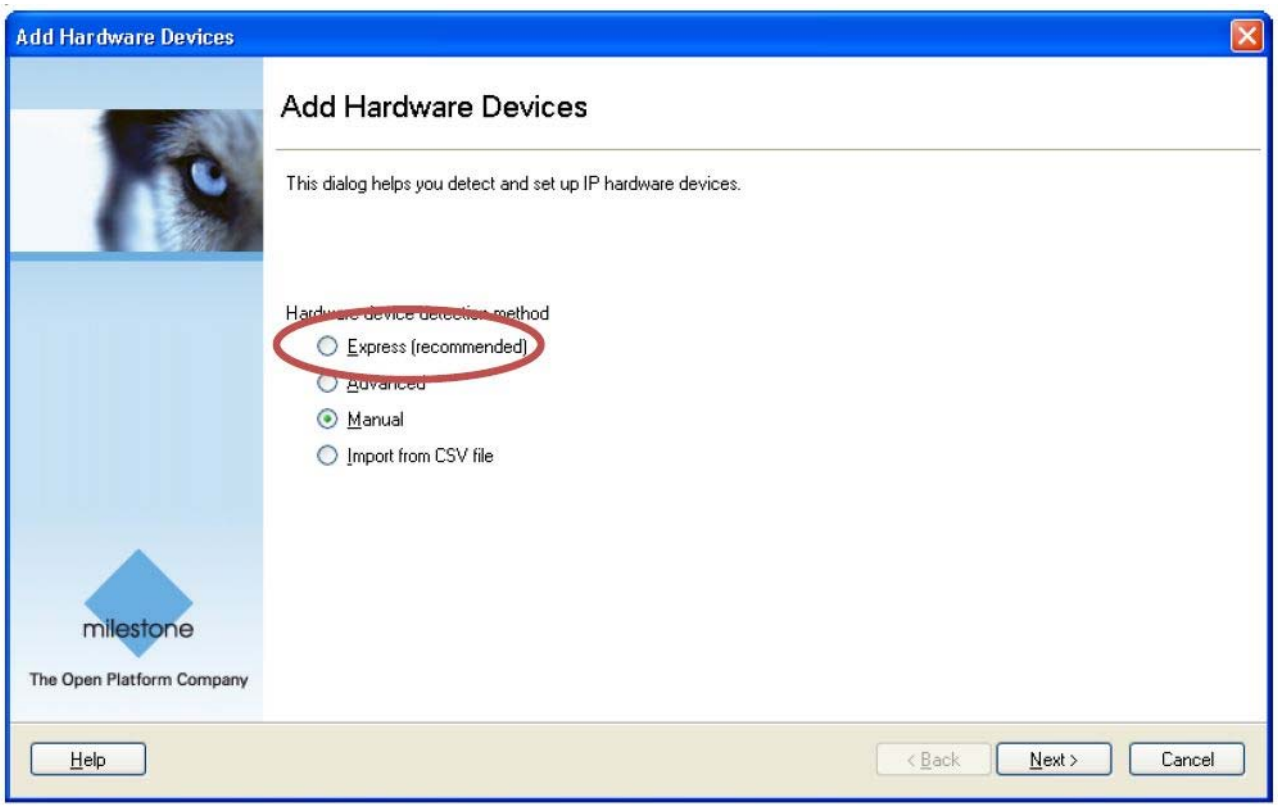
Milestone offers a free NVR program called XProtect freely downloadable online from www.milestonesys.com/downloads. It is able to manage up to 8 cameras and has many limitations compared to the more advanced versions, however we will take it for example for the integration of RH cameras. We proceed in a similar way with the other versions or with software from other manufacturers.

The following absolutely does not intend to provide instructions on the use of the Milestone software, a company with which our product has no relationship, but simply to provide an example to the user who is having to make this integration.

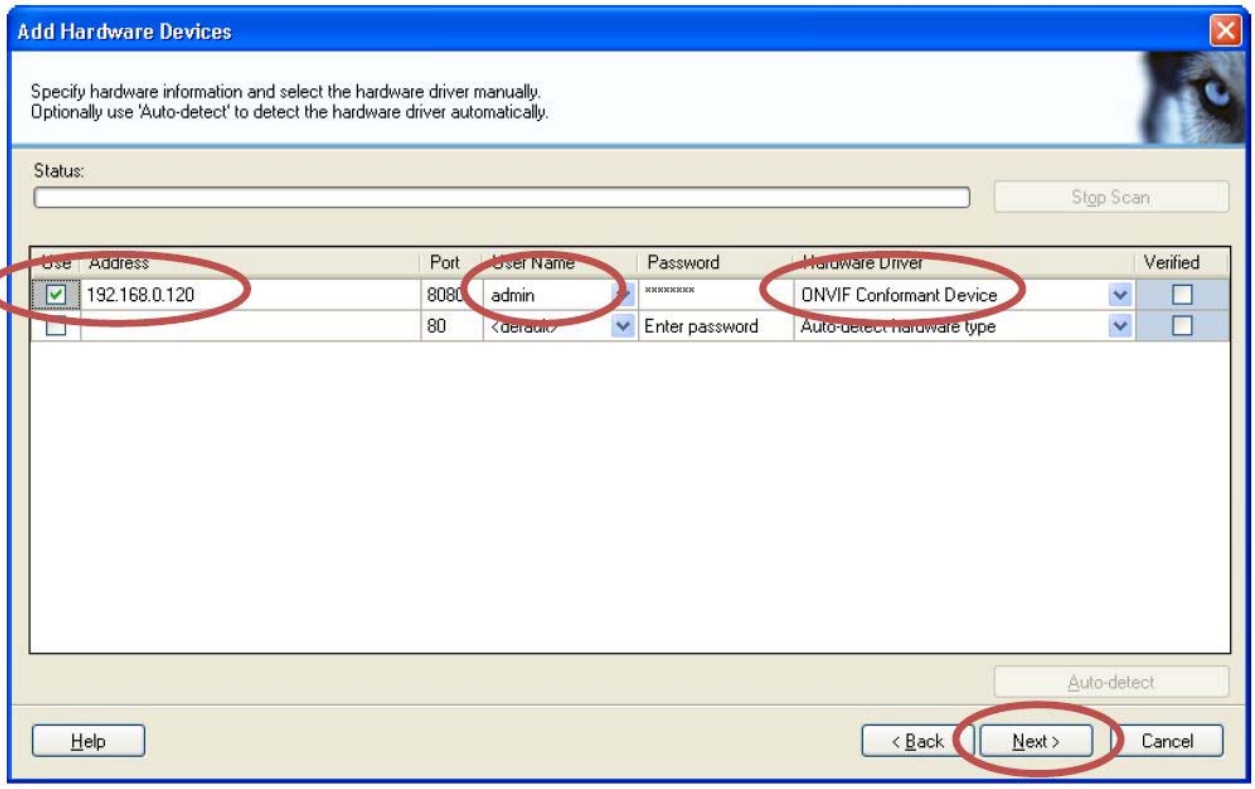
- Click WIZARDS in the left tree and ADD HARDWARE DEVICE to add the camera



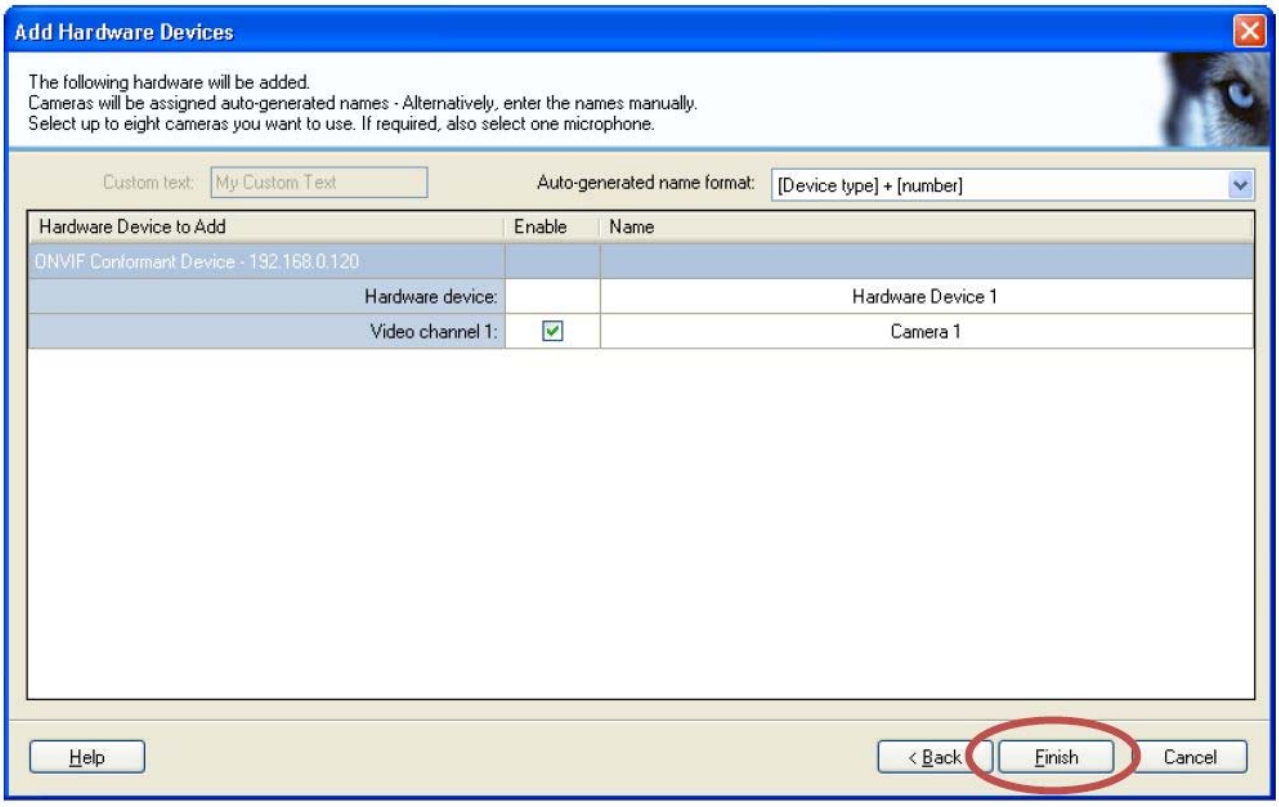

- Choose the EXPRESS detection method. Milestone will detect all cameras on the network with the ONVIF protocol




- Select the camera and indicate the access credentials (default admin / admin)

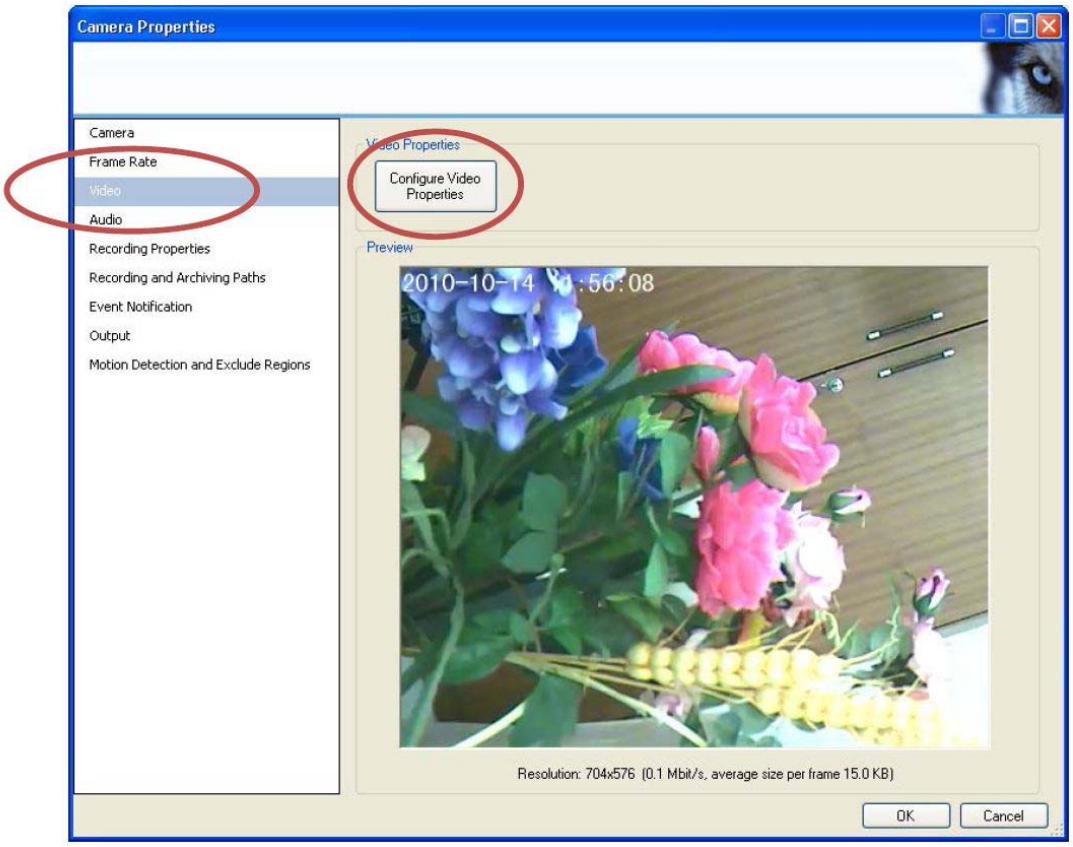



- Click NEXT to continue

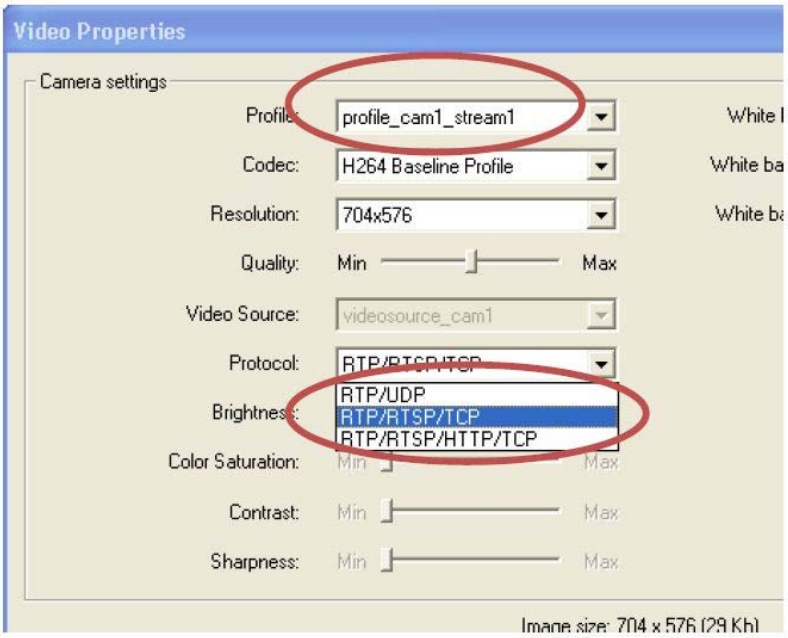



- Click FINISH to incorporate the camera into the milestone program
- Once the connection with the camera is finished, some further settings are required in the configuration
- Right click on the camera icon

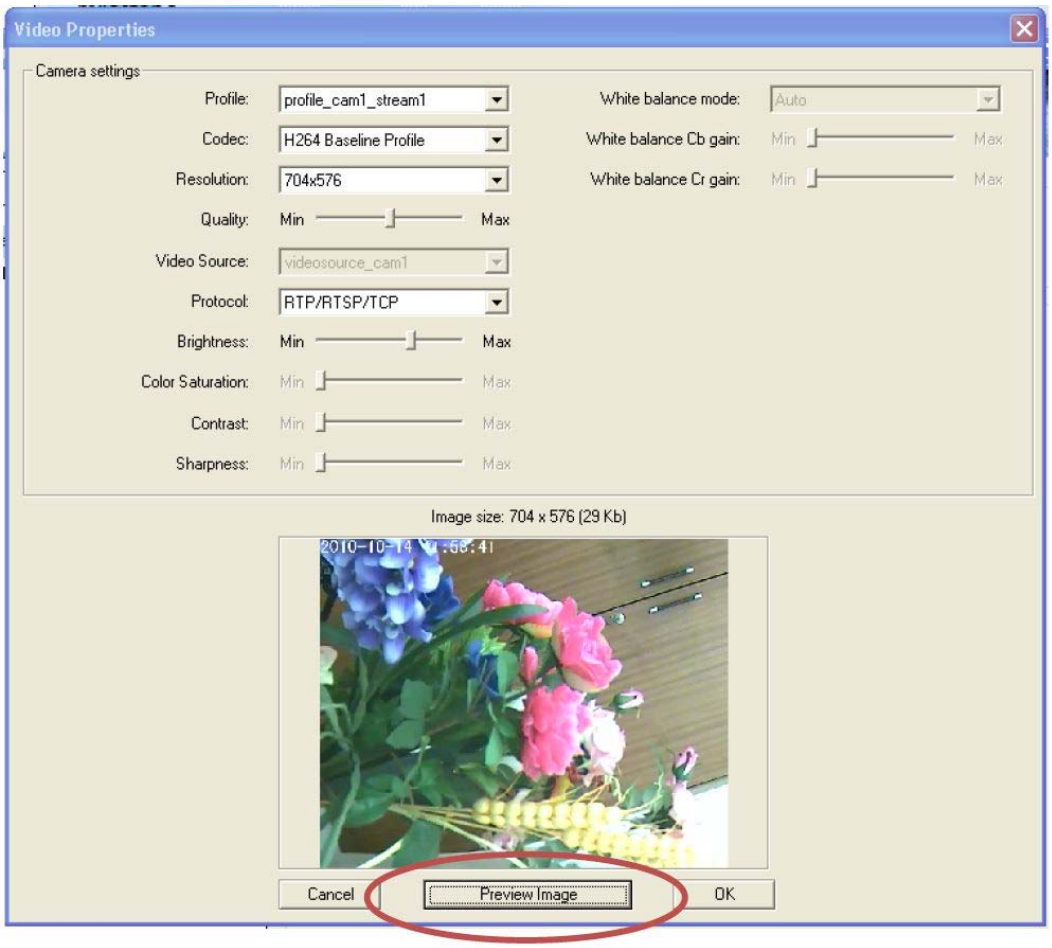

- The camera properties panel opens



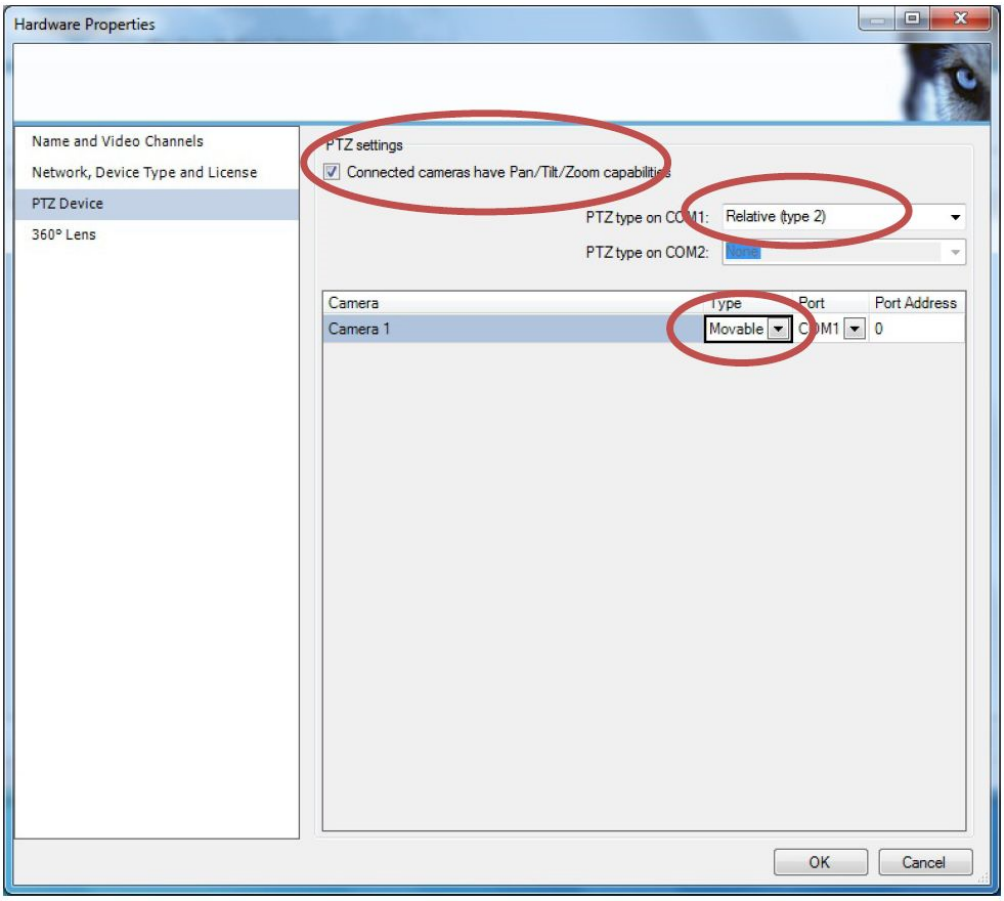

- Choose VIDEO / CONFIGURE VIDEO PROPERTIES




- Select the stream to be used and the RTP / RTSP / TCP protocol
- Click PREVIEW IMAGE to test live viewing




- PTZ - If the camera is equipped with pan / tilt it is necessary to set the camera as MOVABLE and the type of PTZ: Relative (type 2)

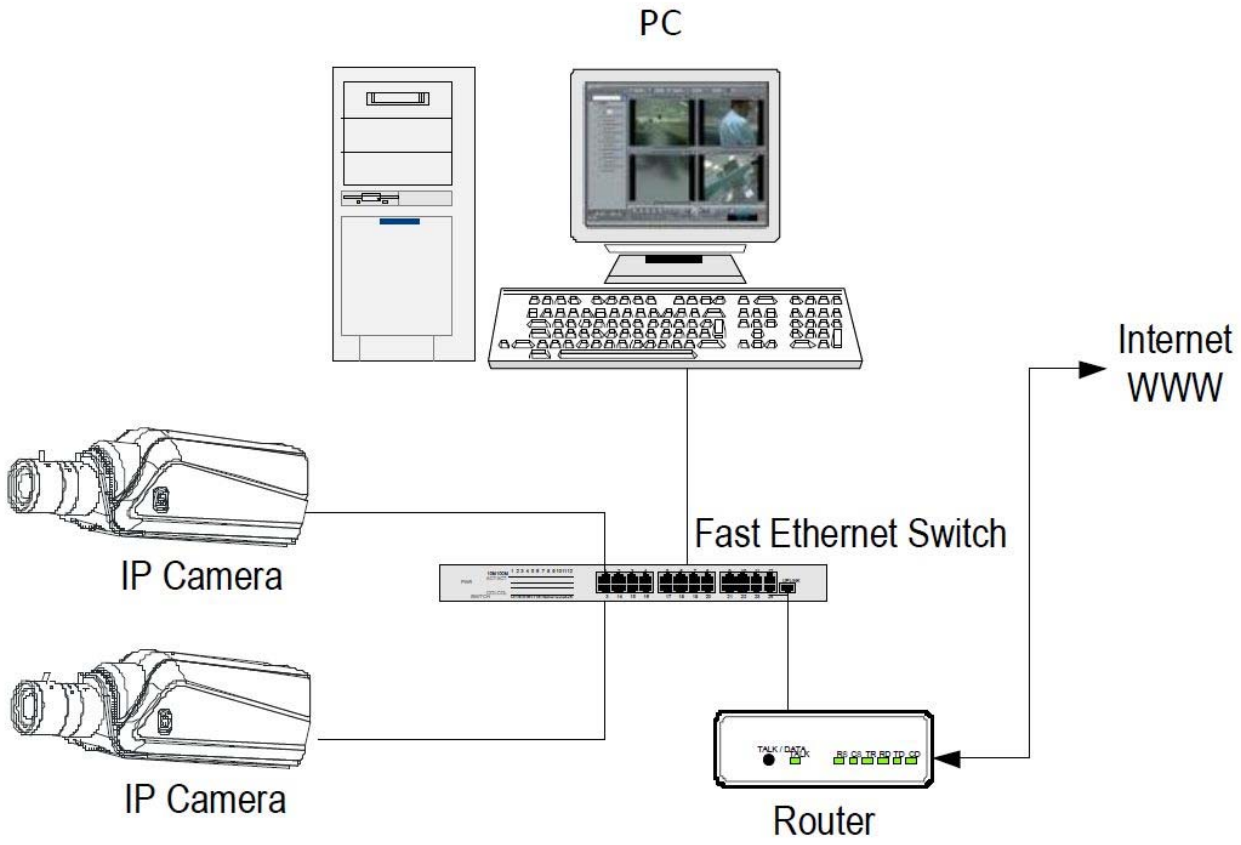

Hardware Properties
Name and Video Channels
Network, Device Type and License
PTZ Device
360° Lens
PTZ settings
Connected cameras have Pan/Tilt/Zoom capabilities
PTZ type on COM1:
Relative (type 2)
PTZ type on COM2:
None
Camera
Type
Port
Port Address
Camera 1
Movable
COM1
0
OK
Cancel

# Access with NVR ONVIF

IP cameras are recorded and controlled more and more frequently with video recorders for IP cameras also called NVRs.
The RH series cameras are compatible with all ONVIF compatible NVRs such as our RK Series range.
For the integration of the cameras into the NVR, refer to the video recorder manual.

# Web access via router

An IP camera system is often placed inside a LAN network connected to the Internet via a router as in the following diagram




If we use a PC inside the network to view the cameras, the addresses of the cameras (generally of the type 192.168.XXX.XXX) are directly accessible both via browser and with NetVMS software. If, on the other hand, we wish to establish the connection via the Internet using a PC located elsewhere, the internal addresses of the network will no longer be directly accessible as the only IP address visible from the web will be the one that our router will have on its WAN side, i.e. towards the outside world of the Internet. This address is assigned by the provider (ISP). It is advisable to obtain a fixed address from the provider at each connection. If this is not possible, DDNS services must be used (see configuration manual). However, it is not sufficient to enter the IP address of the wan-side router in the browser to connect to the cameras. In fact, the router acts as a filter and drops any external call that is not first answered by a call from within the network. In order to be able to connect to the cameras, it is therefore necessary to insert inside the router some port directioning instructions which, according to the router manufacturers, are called NAT, PORT FORWARDING, PORT MAPPING etc.

In practice it is necessary to access the configuration of the router and insert the instructions so that it directs the incoming calls from the outside, towards the internal IP address of the cameras. Obviously the direction is carried out only for the communication ports that are used by the cameras and which will be detailed below.

The main communication ports used by the RH series cameras are as follows:

- **HTTP PORT**: Default 80. The cameras use this port to communicate with browsers such as IE, Chrome etc. This port is not required when logging in with NetVMS.
  Browsers such as Internet Explorer use port 80 by default for communication. For example, if we type in the address bar of the browser: http://212.12.34.201 the IP address 212.12.34.201 will be called on port 80.
  If a different HTTP port is set in the camera configuration (eg 81, 82 etc.) it will be necessary to specify in the browser which port to use for the call, indicating it after the address with ":" as a separation. If e.g. type http://212.12.34.201:81 the IP address 212.12.34.201 will be called on port 81.
- **VIDEO / DATA PORT**: Default 30001. It is the main port used for data communication by the camera to communicate with the NetVMS management software, with browsers and with iOS and iPhone mobile devices.
- **RTSP PORT**: Default 554. It is used by the camera to send the video to software with ONVIF protocol or to RTSP clients such as VLC, Real Player etc ..
- **DOOR RTMP**: Default 8080 used by the camera for streaming video in FLASH technology

The following are the ports to be mapped in the router, depending on the type of client you intend to use to connect to the cameras:

- **BROWSER** (IE, CHROME, etc.): HTTP (80) + VIDEO / DATA (30001)
- **PC software DSE** : VIDEO / DATA (30001)
- **DSE** SmartLive (APP for iPhone, iPad, Android): DATA / VIDEO (30001)
- **NVR SOFTWARE ONVIF FROM OTHER BRANDS**: HTTP (80) + RTSP (554)
- **CLIENT RTSP** (REAL PLAYER, VLC etc.): RTSP (554)

In the most classic of applications, if we want to connect to a camera with the PC software and with the SMARTLIVE smartphone application, simply direct the video / data port 30001 from the WAN side of the router to the address inside the network of the camera

**If more than one camera resides behind the router, it is necessary to assign a different http port and data port to each one. For example doors http 80,81,82 etc. and video / data ports 30001, 30002, 30003 etc.**
**In the NAT settings of the router you will have to direct each port towards the internal**

**address of your camera.**

Note that many routers require that a rule in the firewall section that determines the opening of the affected port is also associated with each NAT direction. See your router's manual for more details on how to program port mapping

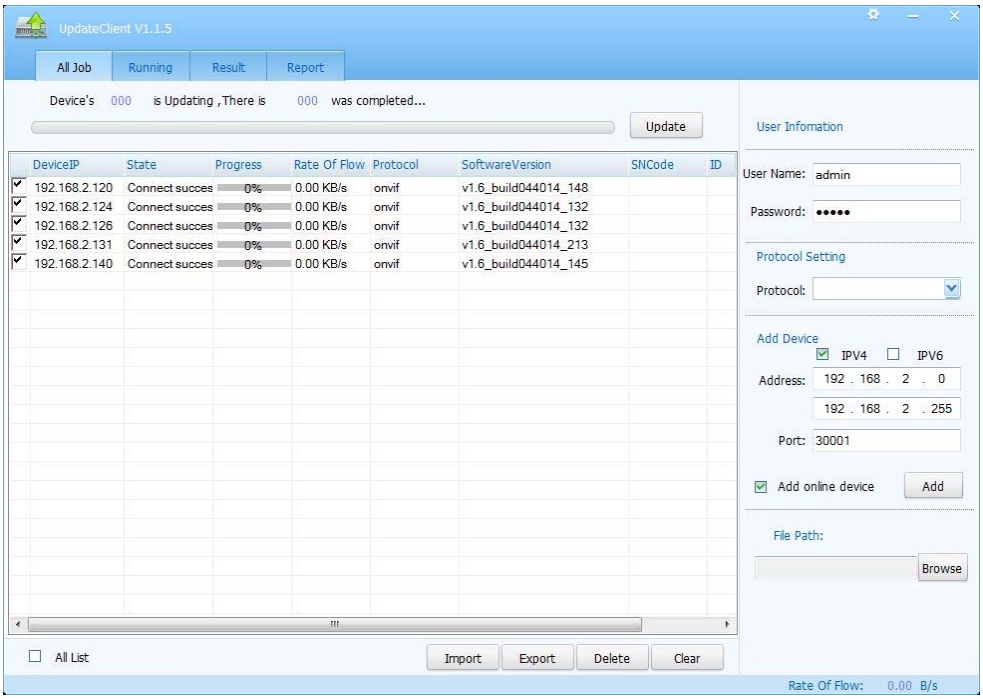
# Factory reset

To restore the factory settings of the cameras, keep the reset button on board pressed for about 10 seconds.

# Firmware update

The firmware update operation of the cameras is potentially dangerous because if it is not successful it can lead to the impossibility of using the camera. It is therefore recommended to proceed with the update only to eliminate precise causes of malfunction and on the indication of our technical service.

The cameras firmware update is carried out by means of a utility which is included on the CD attached to the camera. This program allows you to update the firmware of all cameras simultaneously. It is necessary to obtain the firmware update file in advance following the instructions of the technical service. Start the UPDATE CLIENT program which is already provided in a folder containing all the necessary files and does not require installation. It is possible to copy the folder on your hard disk or on a stick to easily run it on any PC.




Select ADD ON LINE DEVICE and define the DA..A interval in which to search for the IP address of the cameras to be updated. Click ADD: the program will list all the cameras on the network in the top window.

Check the cameras that require updating.

Click BROWSE to search for the update file on your hard disk. Finally click UPDATE to start updating all the selected cameras. Wait for the end of the operation without absolutely turning off the cameras or the PC during the procedure.