# IP Matrix

VJD-8000

**en** Software manual

# Table of contents


| | | |
|---|---|---|
| **1** | **Introduction** | **4** |
| 1.1 | About this manual | 4 |
| 1.2 | Conventions in this document | 4 |
| 1.3 | Additional documentation | 4 |
| **2** | **System overview** | **5** |
| 2.1 | Setups | 5 |
| 2.2 | Requirements | 5 |
| 2.3 | Functions | 6 |
| **3** | **Installation** | **7** |
| **4** | **Configuration** | **8** |
| 4.1 | Introduction | 8 |
| 4.2 | Configuring the decoders | 8 |
| 4.3 | Adding cameras | 9 |
| 4.4 | Adding sequences | 12 |
| 4.5 | Basic keyboard settings | 14 |
| **5** | **Operation** | **15** |
| 5.1 | Keyboard basics | 15 |
| 5.2 | Keyboard print template | 18 |
| 5.3 | Keyboard layout | 19 |
| **6** | **Troubleshooting** | **20** |

# 1 Introduction

## 1.1 About this manual

This manual is intended for persons responsible for configuring and managing a CCTV system. This manual describes how to configure the program.
This document assumes that the reader is familiar with both the CCTV system and the other programs that are integrated into the system.

## 1.2 Conventions in this document

The following symbols and notations are used to draw attention to special situations:

**Notice!**
This symbol indicates special features and provides tips and information for easier, more convenient use of the software.

Terms that you can find in the program, such as menu options, commands or text in the user interface, are written in **bold**.

## 1.3 Additional documentation

**Notice!**
**Read and follow the instructions in the hardware documentation**
While setting up the hardware for IP Matrix, read and follow the instructions of the hardware documentation. The documentation contains important safety messages. It is mandatory to read and understand the safety messages prior to installation of the hardware.

**More information**
For more information, software downloads, and documentation, visit www.boschsecurity.com and go to the respective product page.

# 2 System overview

## 2.1 Setups

IP Matrix turns a Bosch VIDEOJET decoder configuration into a stand-alone, IP-based CCTV surveillance system.

**Basic configuration**
With an KBD-UXF keyboard, and one or two displays connected to the decoder, up to 32 cameras can be controlled without a PC being needed for operation.

**Maximum configuration**
In a maximum setup with four decoders and eight displays attached, four operators can control up to 128 cameras via four independently operating keyboards.

**Connected mode**
The use of a PC is only required for the setup and installation of the system or for maintenance. The PC must reside in the same network as the decoders.

**Stand-alone mode**
In operational mode the system communicates over the network connections between IP cameras, encoders and decoders, controlled via KBD-UXF keyboard operation. A network connection to a PC is not needed.
IP Matrix can be enhanced by recording devices which are controlled outside of IP Matrix operation.
Embedded into a wider CCTV system, IP Matrix can function as a satellite system. The super ordinate system can control the decoders of an IP Matrix just like normal decoders. Besides that, IP Matrix works completely independent and is independent of PC control
IP Matrix covers many applications where in analog systems the analog CCTV matrix switch Allegiant 8100/8200/8300 would be used. Therefore it can be seen as the IP-equivalent to these Allegiant matrix switch systems.

## 2.2 Requirements

**For configuration purposes:**

| | |
|---|---|
| Hardware | Personal Computer |
| CPU | Dual Core, 3.0 GHz or faster |
| RAM | Minimum 2 GB |
| Operating system | Windows Server 2008 R2 (64 bit)<br>Windows 7 SP1 (64 bit)<br>Windows 8.1 (64 bit)<br>Windows 10 (64 bit) |
| Graphic card | Refers to MPEG-ActiveX 6.30 or VideoSDK 6.30 |
| Ethernet card | 100 Mbps |
| Sound card | Recommended |
| Software | Microsoft .NET 4.5 |
| Free memory (installation) | 250 MB (Configuration Manager, VideoSDK) |

**For installed software**
Configuration Manager 6.01 or later is required.

**For operational purpose**

– 1 to 4 Bosch VIDEOJET decoders with firmware 9.50 or later (fully installed and ready for operation)
– 1 to 4 KBD-UXF keyboards (fully installed and ready for operation)

**Note:**
The IP Matrix needs to be configured via Configuration Manager prior to operation.

## 2.3 Functions

**IP Matrix system**

IP Matrix can be used to control IP-based monitoring systems. An IP-based monitoring system consists of up to 4 decoders, up to 8 displays connected to them, and is controlled by up to 4 KBD-UXF keyboards, without the use of a computer. This monitoring system can control up to 128 cameras.
In normal operation, the system works self-sufficient via the network connections between IP cameras, encoders and decoders. It is controlled via the keyboards.
As part of a larger CCTV system, IP Matrix can be used as a satellite system.

**Camera sequences and AUTODOME presets**

IP Matrix supports the configuration of up to 32 predefined camera sequences; you can switch these rather than individual cameras to monitors. These sequences enable cameras to be switched in a continuous sequence in accordance with a schedule.
Bosch AUTODOME cameras can be controlled as usual via KBD-UXF. Fixed AUTODOME positions can be configured in the system as virtual cameras. Please refer to the camera's manual for details.

**Configuration**

IP Matrix can be configured using the Configuration Manager program.

**Summary**

IP Matrix provides the following main functions:

– Purely IP-based CCTV matrix system
– Up to 128 cameras, eight monitors and four KBD-UXF keyboards
– No computer required to operate system
– Automatic camera sequences
– Layout switching, single view and picture-in-picture
– Up to nine favorite views with layouts and predefined camera connections

# 3 Installation

**Prerequisites**

To use IP Matrix, following is necessary:

– 1 to 4 ready-to-use Bosch VIDEOJET decoder, connected to a surveillance network
– 1 to 8 displays with appropriate interface connections or adapters
– 1 to 4 KBD-UXF keyboards
– Fixed or moving cameras connected to the surveillance network
– A PC with Bosch Configuration Manager installed (for configuration purposes only), connected to the surveillance network

**Note:**

When installing devices, comply with all safety regulations and instructions given in the devices' individual manuals.

**Installing displays**

Connect one or two displays to the DisplayPort connectors of the VIDEOJET decoder. The actual sequence of the displays can be set during the configuration of IP Matrix. There is no need to follow a certain cabling sequence when setting up the displays.

**Installing keyboards**

In order to operate the IP Matrix, at least one keyboard has to be connected to one of the VIDEOJET decoders.

**Note:**

If more than one keyboard is connected, all keyboards in the matrix are equal and control the whole system.

**Finishing hardware installation**

After connecting the hardware components, switch on the devices.
On your configuration PC, launch Configuration Manager.
Configure the matrix as described in chapter *Configuration, page 8*.

# 4 Configuration

## 4.1 Introduction

Before you can use the IP Matrix, the system needs to be configured. The configuration is done in three main steps:

1. Add 1 to 4 decoders, save their IP addresses, and configure the amount of displays connected to them.
2. Add cameras to the matrix.
3. Create camera sequences and select the cameras that shall be part of the sequence.

**Note:**
If you connect AUTODOME cameras to the matrix, you can use their preset positions as if they were individual cameras. Please refer to the manual of your camera to read about how to set these presets.

**Setting a general password**
All cameras in the IP Matrix need to share the same user password. This **General password** must be set on the **Advanced** page of the Configuration Manager:

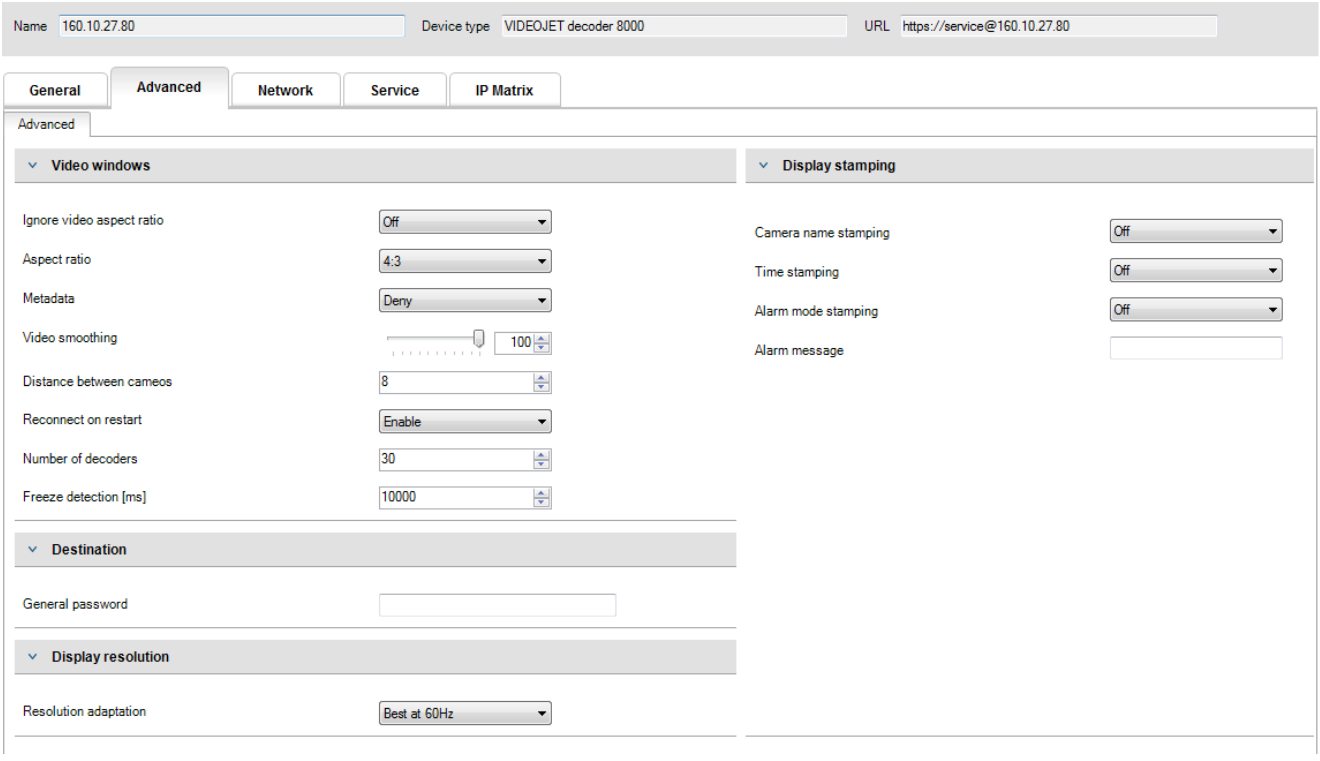



**Figure 4.1: Setting a general password**

**To set the General password:**

1. Enter the desired password.
2. Save the settings.

✓ A password is set and will be used to connect to the cameras.

Now you can navigate to the IP Matrix page.

## 4.2 Configuring the decoders

At least one decoder is needed to create a matrix. In maximum configuration, an IP Matrix can consist of up to four decoders.

**To add a decoder to the matrix:**

1. Navigate to the **IP Matrix** page of the Configuration manager.
2. Select the **Decoders** tab.
   If the decoder is not part of an IP Matrix, the IP address fields are dimmed.
3. Press the **Set this device as master** button to set the decoder as master for a new IP Matrix.
   The IP address of the new master is entered automatically. Up to three additional decoders can be added as slaves to this IP Matrix by entering their IP addresses in the respective fields.
   Note: All settings are done through this *Master* decoder. The master controls the other decoders in a multi-decoder matrix.
4. Set the number of **Displays** connected to the decoder.
5. Under **Display 1 start monitor** select the number of the first monitor to be shown on display 1.
6. Under **Max monitor count** enter the maximum amount of monitors that will be shown on display 1.
7. Under **Display 2 start monitor** set the number accordingly. The start number must be greater than the start number of display 1 plus the max monitor count of display 1.
   Note: You can deactivate the second display if only one monitor is connected.
8. Set the **Max monitor count** for display 2.
   The monitor settings control the sequence of the displays within the matrix.
9. Repeat the above steps accordingly to add up to three more decoders.

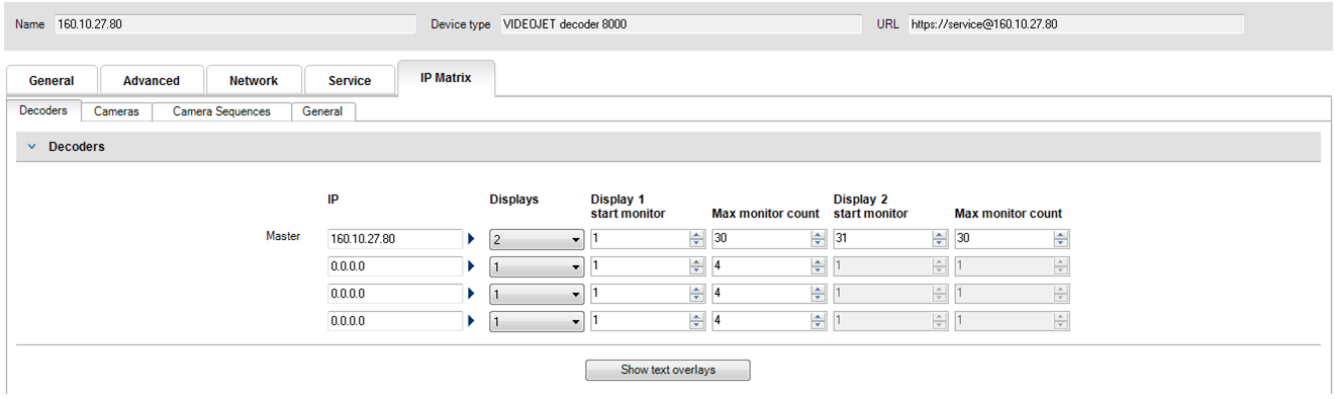



**Figure 4.2: Decoder settings**

**Note:**

Click **Show text overlays** to show overlays indicating monitor indexes and decoder IP addresses in each monitor window, thus allowing for easy identification of the individual monitors.

This helps to renumber monitors consecutively over the monitor wall, regardless of the order in which the displays were originally mounted.

## 4.3 Adding cameras

Navigate to **IP Matrix > Cameras** to access the Cameras page.

Use the **Edit** button to add cameras.

Choose the stream and preset for each camera or stay with the default values (Stream 1, no preset).

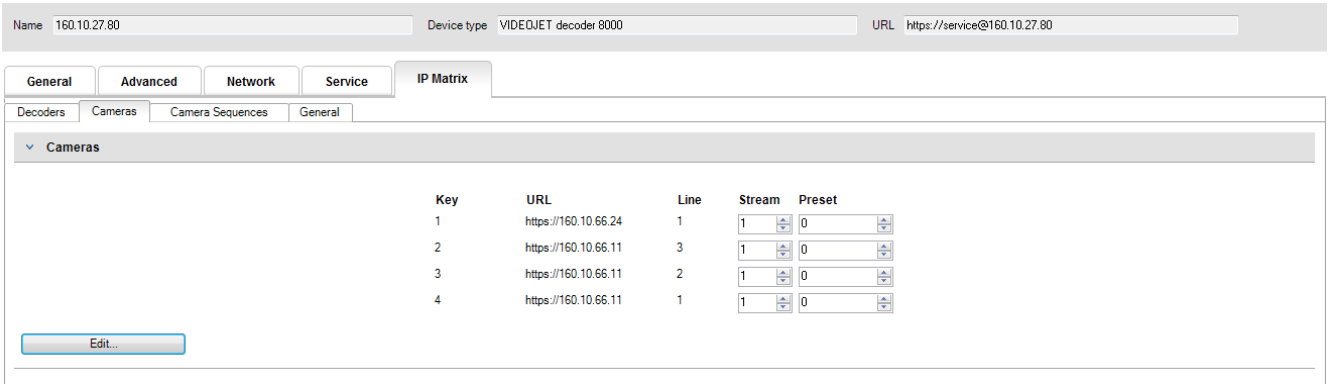



**Figure 4.3: Selected Cameras list**

Clicking the **Edit** button opens the camera list:

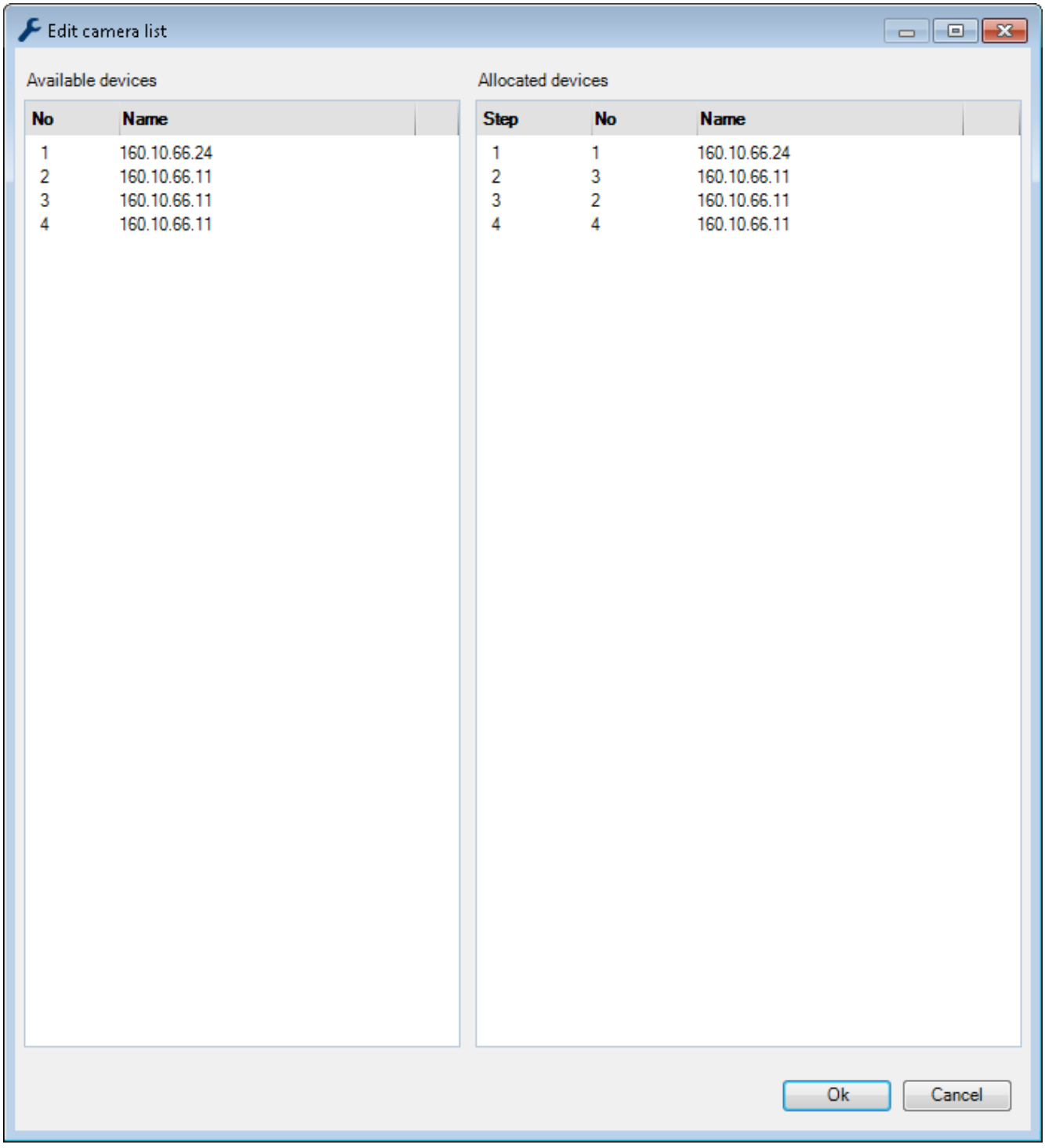



**Figure 4.4: Edit camera list**

**To add a camera:**

Use the mouse to drag & drop a camera from the **Available devices** pane to the **Allocated devices** pane of the camera selection list.

Multiple camera selection is possible to drag & drop them together to the **Allocated devices** pane, being placed in consecutive order.

**To delete a camera:**
Use the mouse to drag & drop one or multiple camera(s) from the **Allocated devices** pane to the **Available devices** pane.

**To accept list changes:**
Click **OK** to accept the list changes.

## 4.4 Adding sequences

You can define a maximum of 32 independent camera sequences. Each camera's view will be displayed for a given time and switch to the next camera in the list after the time elapsed.

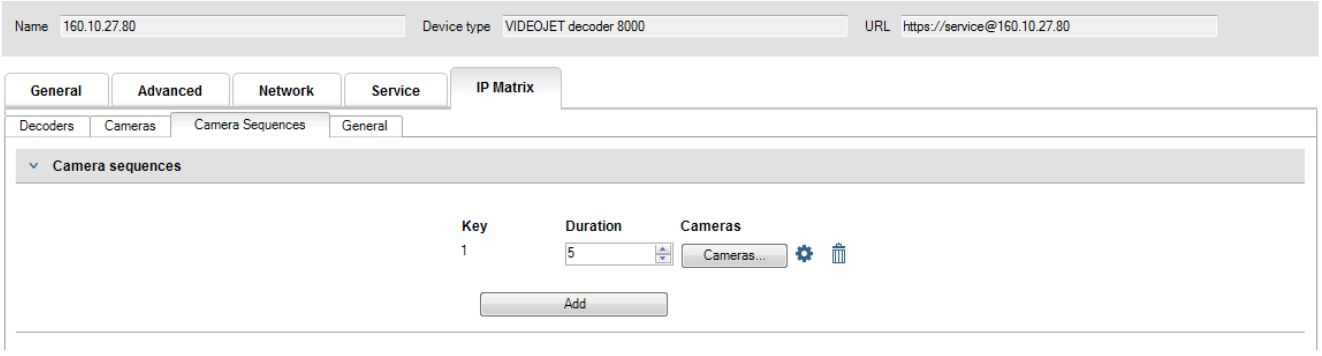



**Figure 4.5: Cameras sequence settings**

Click **Add** to add a new sequence.
Enter a **Duration** (in seconds).
Click **Cameras...** to open the camera list selection:

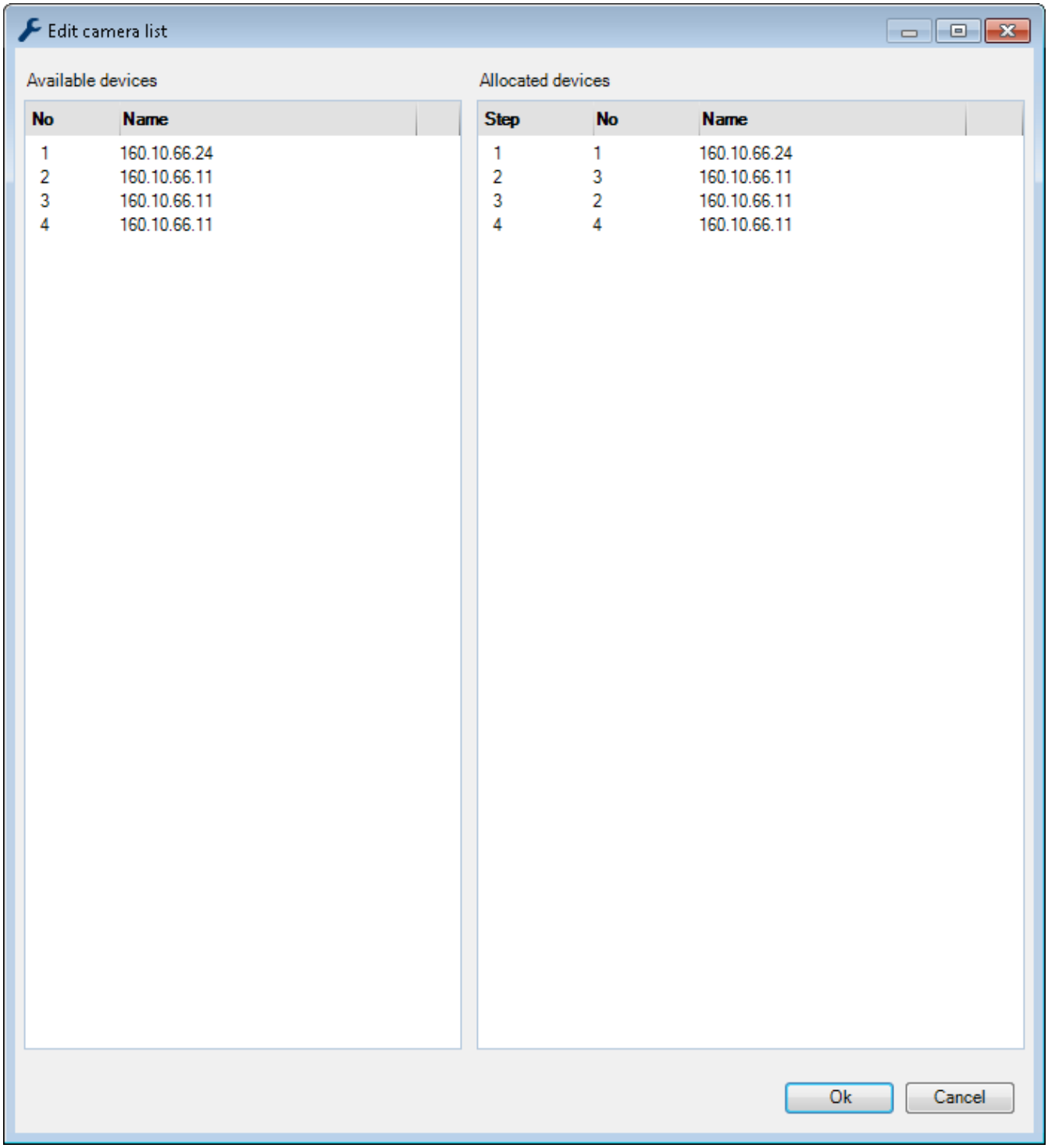



**Figure 4.6: Select cameras from list**

**To add a camera:**

Use the mouse to drag & drop a camera from the **Available devices** pane to the **Allocated devices** pane of the camera selection list.

Multiple camera selection is possible to drag & drop them together to the **Allocated devices** pane, being placed in consecutive order.

**To delete a camera:**
Use the mouse to drag & drop one or multiple camera(s) from the **Allocated devices** pane to the **Available devices** pane.

**To accept list changes:**
Click **OK** to accept the list changes.
As an alternative, you can add the camera list manually. Click the **gear icon** to open the camera list editor. Type the desired cameras' numbers, followed by comma to separate the values.

## 4.5 Basic keyboard settings

### Setting keyboard parameters

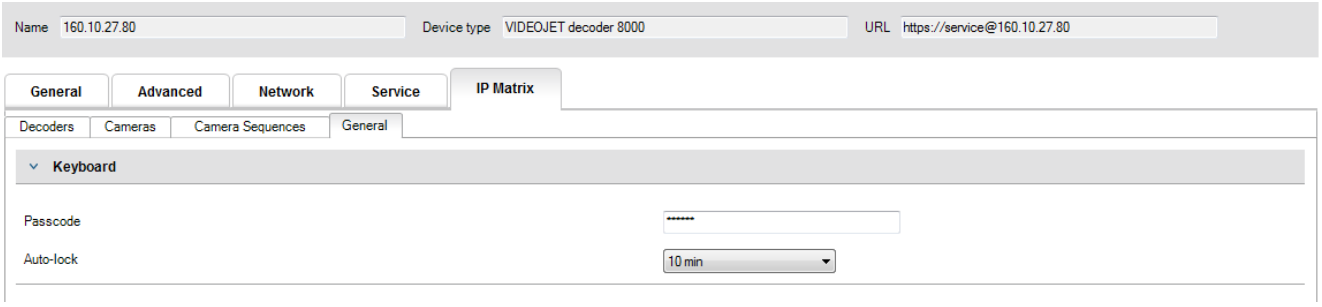



**Figure 4.7: Keyboard settings**

Set a numeric **Passcode**. This will be used to unlock the keyboard.
Choose a time from the **Auto-lock** selection. If no keyboard input is made for the given time, the keyboard will be locked automatically.

# 5 Operation

After configuring the IP Matrix using PC and Configuration Manager program, the IP Matrix operates as a stand-alone CCTV surveillance system. All operations are carried out using the attached keyboard.

**Notice!**
Refer to the Instructions Manual delivered with your KBD-Universal XF keyboard available on the online product catalog.

## 5.1 Keyboard basics

The following table lists the icons on the keyboard template and their respective function.

| Icon | Function |
|---|---|
| | Display monitor numbers and decoder IP addresses<br>▸ Press this key to displays the monitor numbers and decoder IP addresses as overlay on the monitors. |
| | Displays camera numbers and camera IP addresses<br>▸ Press this key to displays the camera numbers and camera IP addresses as overlay on the monitors. |
| | Call-up favorites. Maximum 9 favorites are available.<br>▸ Press this key, enter the number using the number keys, then click **OK**.<br>**Note:** The layouts and camera connections on all displays are re-established. |
| | Save up to 9 favorites.<br>▸ Press this key, enter the number using the number keys, then click **OK**.<br>**Note:** The layouts and camera connections on all displays are saved. |
| | Audio on/off<br>Blinking indicates that the function is enabled.<br>No audio function supported in Firmware 9.50, but login function.<br>To log in:<br>▸ Press this key, enter the passcode, then click **OK**. |
| | Start/stop recording.<br>▸ Press this key to start or stop recording.<br>**Note:** Not supported in Firmware 9.50. |
| | Switch keyboard to left-hand use and back.<br>The key assignment is rotated by 180 degrees.<br>▸ Press this key, then click **OK**. |
| | Switch between Live Mode and Playback Mode.<br>Blinking indicates that the function is enabled.<br>▸ Press this key to switch.<br>**Note:** Not supported in Firmware 9.50. |

| Icon | Function |
|---|---|
| | Load a sequence.<br>▸ Press this key, enter a valid sequence number (1 to 32), then click **OK**.<br>**Note:** Blinking indicates that the input of a number is required. |
| | Previous layout with less monitors<br>▸ Press this key to switch to previous layout with less monitors.<br>**Note:** Use this key to decrease the number of monitors on the current display. This key provides a round-trip function. The first layout starts again, if the last layout is reached, and vice versa. |
| | Next layout with more monitors<br>▸ Press this key to switch to next layout with more monitors.<br>**Note:** Use this key to *i*ncrease the number of monitors on the current display. This key provides a round-trip function. The first layout starts again, if the last layout is reached, and vice versa. |
| | Full-screen on/off<br>▸ Press this key. |
| | Full-screen with picture-in-picture on/off<br>▸ Press this key. |
| **1** .... **0** | Number keys |
| **ESC** | Breaks the entering of a number |
| **OK** | Confirms a number entry. |
| | Enable/disable focus control.<br>▸ Press this key, then turn the joystick control knob to change the focus control. |
| | Enable/disable iris control<br>▸ Press this key, then turn the joystick control knob to change the iris control. |
| | Select a monitor.<br>▸ Press this key, enter the number using the number keys, then click **OK**. |
| | Lock/unlock keyboard<br>▸ Press this key to lock or unlock the keyboard after entering the passcode.<br>**Note:** Highlighted if state is locked. |
| | Fast backward (stepwise)<br>Not supported in Firmware 9.50. |
| | Play backward<br>Not supported in Firmware 9.50. |
| | Freeze on/off<br>▸ Press this key to freeze/unfreeze the video on all monitors. |

| Icon | Function |
|---|---|
| | **Note:** Selecting another layout, camera or monitor also unfreezes the video. |
| | Play<br>Not supported in Firmware 9.50. |
| | Fast forward (stepwise)<br>Not supported in Firmware 9.50. |

**To select a camera:**

1. Press the number keys to enter the camera's number on the list.
2. Press **OK** to switch the current monitor to the selected camera's view.

**To select a monitor:**

- Use the keyboard wheel to select a monitor. The active monitor is highlighted by a frame.
  or
  Press the monitor key, enter the number using the number keys, then click **OK**.

**To control PTZ cameras:**

- Use the keyboard's joystick to control the axis of a PTZ camera.

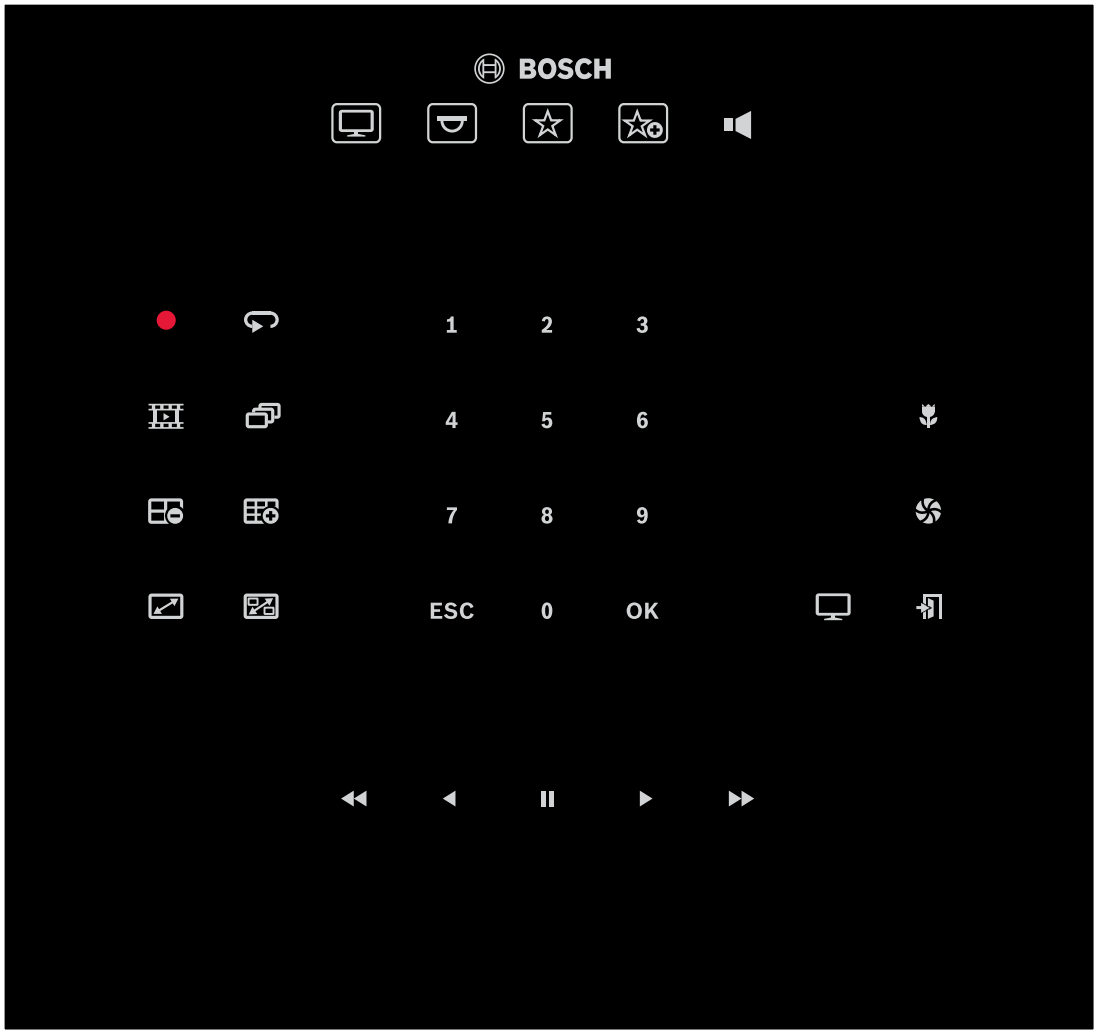
**To control zoom function:**

- Turn the joystick control knob to zoom in or out. If the camera does not offer optical zoom, a digital zoom will be simulated.

## 5.2 Keyboard print template

The following graphic shows the key assignment of the keyboard.

**Notice!**
To print the keyboard assignment on the pre-punched keyboard template provided with the product, use the true to scale template “Special Print template IP Matrix for KBD UXF” in the online product catalog.



## 5.3 Keyboard layout

The following graphic illustrates the different groups of keys on the keyboard, shown in its right-hand version.

**Figure 5.1: KBD Universal XF user interface**

| | | | |
|---|---|---|---|
| 1 | Numbered function keys and audio. | 2 | Rotatable knob<br>Use to control the zoom function of a device or the built-in digital zoom factor. |
| 3 | Joystick<br>Use to pan or tilt a PTZ device.<br>Use to move the field of view in a digitally zoomed viewing pane. | 4 | Client control buttons<br>These buttons are shortcuts to certain client functions. |
| 5 | Playback controls<br>Use to control the playback speed of recorded tracks. | 6 | Number buttons<br>Use to select favorite views, sequences or single devices. |
| 7 | Shuttle ring<br>Use to select a certain monitor in a multi-monitor view in live mode.<br>Use to control playback speed in playback mode. | 8 | Jog dial<br>Use to scroll through monitors. |

# 6 Troubleshooting

For general appearance check the **Advanced** tab settings of each decoder.

| Issue | Solution |
|---|---|
| No keys lit. | Check the power and data connections. |
| All five function keys are lit when switching the keyboard On. No other key works. | The keyboard is in the wrong interface mode. Refer to the keyboard manual to change the mode. |
| Can't access cameras. | Check the General password. All cameras must use this password as a user password. |
| In a multi-decoder setup: Settings in the Configuration Manager do not affect the IP Matrix. | Only settings on the Master decoder affect the IP Matrix. Choose the Master decoder and try again. |
| The selected monitor is not highlighted. | Check the distance between cameos and increase it if necessary. |
| No connections after restarting the decoder. | Enable reconnect on restart. |
| Not all monitors can be populated with video connections. | Check the number of decoders, that defines the maximum possible connections on one decoder device.<br>Or<br>Your layout may provide more monitors than allowed by maximum monitors per display. |

**Bosch Security Systems B.V.**
Torenallee 49
5617 BA Eindhoven
Netherlands
**www.boschsecurity.com**
© Bosch Security Systems B.V., 2019