

T-CAM CAMERA TRACKING

USER & INSTALLATION GUIDE

V1.114 (MAY 2024)



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GETTING STARTED

About This Manual

Throughout this guide we use different icons to designate different types of information:

	This is a note. A note gives additional information, such as the meaning of the color of the LEDs. A note also provides information that may only be applicable to some situations.
	This is a tip. A tip gives you an alternative way to do a particular step or procedure, or lets you know of an option that you may find helpful.
	This indicates that something is very important. Important information is something that you need to do in order to accomplish a certain task.
	This provides safety precaution information, that is, information that you need to be careful about to prevent potential problems when using our systems.

Compatibility

This user manual applies to the following products:

Product	Article Number
T-Cam Camera Tracking	71.98.1303 or 71.98.1305
IP-Cam50 camera and license	71.98.1304 or 71.98.1306
T-Cam Name overlay	71.98.1302

ABOUT T-CAM CAMERA TRACKING

Concept And Design

The T-Cam Camera Tracking package is a complete and out-of-the-box solution for camera tracking allowing straight-forward installation, fast configuration and integration with any Televic Conference system. The T-Cam solution controls up to 4 HD-SDI cameras.

The T-Cam solution consists out of three parts:

- › **T-Cam Package (71.98.1303 or 71.98.1305)**: This is the basic camera tracking package. This box contains all the equipment and specific cables required to install a camera tracking system with 2 cameras.
- › **IP-CAM50 Camera & License (71.98.1304 or 71.98.1306)**: this adds an additional camera. For the T-Cam solution a maximum of 4 cameras can be controlled, meaning that the basic package can be extended with 2 add-ons.
- › **T-Cam Name Overlay (71.98.1302)**: This article adds a name overlay onto the video output.



The names for the video overlay come from the CoCon Camera protocol.

To mount the capture card , a PC with PCI slot is required.

Features And Functionality

The T-Cam Camera Tracking solution offers the following features:

- › Integrates seamlessly with D-Cerno, Plixus (Embedded Room Server), CoCon, Confidea G3 and Confidea G4
- › Creation of a synoptic for easy configuration of camera positions
- › 2 shots per seat
- › 2 shots for the wide shot
- › Live adjustments possible with clean transitions
- › Multiple seat configurations available for flexible seating arrangements

- › Configuration of camera positions can be done with the software or with a USB-joystick (not included in any of the packages)
- › Manual switch to HDMI input for static input (e.g., presentation laptop)
- › For ATEM 1 M/E Constellation Switcher: SDI IN 1 is used as static input
- › Manual switch to Media Player input (see Black Magic Video Switcher manual for more details)
- › Software upgradable to webcasting software



SAFETY INSTRUCTIONS

This chapter describes all safety instructions needed to use the T-Cam Camera Tracking system. Read this before using the equipment.

SAFETY INSTRUCTIONS

The safety instructions contain general safety guidelines that integrators, installers, operators, end users, and anyone else who installs or uses Televic Conference material is required to read and follow at all times.

Safety

All Televic Conference systems are state of the art devices and have been designed to meet all quality standards. Nevertheless, the individual components of the conference system can cause danger for persons and material assets if

- › the conference system is not used as intended,
- › the conference system is set up by personnel not familiar with the safety regulations,
- › the conference system is converted or altered incorrectly,
- › the safety instructions are not observed.

Important Safety Instructions

1. **Read Instructions.** All the safety and operating instructions should be read before the product, device or system is operated.
2. **Retain Instructions.** The safety and operating instructions should be retained for future reference. The instructions should be kept in the vicinity of the product or system.
3. **Heed Warnings.** All warnings on the product and the operating instructions should be closely adhered to.
4. **Follow Instructions.** All instructions for installation or operating/use should be followed closely.
5. **Cleaning.** Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use only a damp cloth for cleaning.
6. **Ventilation.** Any slots and openings in the device or equipment are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating. These openings must not be blocked or covered. The openings should never be blocked by placing the product on a chair, table, rug, or other similar surface. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.

7. **Heat.** The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat. Do not use or operate any equipment in environments that exceed the standard operating temperatures.
8. **Modifications.** Do not use any modifications, extension, or other attachments not recommended by the product manufacturer as they may cause hazards.
9. **Accessories.** Only use attachments/accessories specified by the manufacturer. Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the product. Any mounting of the product should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.
10. **Water and Moisture.** Do not use this product near water or in a humid environment.
11. **Moving.** A product and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product and cart combination to overturn.
12. **Power Sources.** This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply of your room, consult your product dealer or local power company. For products intended to operate from battery power, or other sources, refer to the operating instructions.
13. **Power Lines.** An outdoor system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outdoor system, extreme care should be taken to keep from touching such power lines or circuits, as contact with them might be fatal. U.S.A. models only - refer to the National Electrical Code Article 820 regarding installation of CATV systems.
14. **Grounding or Polarization.** Do not defeat the safety purpose of the polarized or ground-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wider blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
15. **Power-Cord Protection.** Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plug, convenience receptacles, and the point where they exit from the product.
16. **Lightning.** For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet. This will prevent damage to the product due to lightning and power-line surges. (Not applicable when special functions are to be maintained, such as evacuation systems.)

17. **Overloading.** Do not overload wall outlets, extension cords or integral convenience receptacles as this can result in a risk of fire or electric shock.
18. **Object and Liquid Entry.** Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.
19. **Inflammable and Explosive Substance.** Avoid using this product where there are gases, and also where there are inflammable and explosive substances in the immediate vicinity.
20. **Heavy Shock or Vibration.** When carrying this product around, do not subject the product to heavy shock or vibration.
21. **Servicing.** Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
22. **Damage Requiring Service.** Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
 - a. When the power-supply cord or plug is damaged.
 - b. If liquid has been spilled, or objects have fallen into the product.
 - c. If the product has been exposed to rain or water.
 - d. If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.
 - e. If the product has been dropped or damaged in any way.
 - f. When the product exhibits a distinct change in performance-this indicates a need for service.
23. **Replacement Parts.** When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.
24. **Safety Check.** Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.
25. **Coax Grounding.** If an outside cable system is connected to the apparatus, be sure the cable system is grounded. U.S.A. models only: Section 810 of the National Electrical Code, ANSI/NFPA

No.70-1981, provides information with respect to proper grounding of the mount and supporting structure, grounding of the coax to a discharge apparatus, size of grounding conductors, location of discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

26. **Eye exposure.** Beware of permanent eye damage due to the infrared radiation. Permanent exposure is allowed at a distance of 50 cm ($E=100 \text{ W/m}^2$ limit according to IEC62471 2006-2007 first edition). At distances below 10 cm (=for servicing, installation testing), limit is reached after 20 to 30 seconds. Take precautions : cover the LEDs during servicing/testing and limit the exposure time. Avoid looking directly into the LEDs and limit the exposure time. At distances between 10 to 50 cm : avoid looking directly into the LEDs and limit the exposure time.

Maintenance

GENERAL



Do not put any objects on top of the units. Object falling through the holes of the unit can cause damage.



Do not install the units in a location near heat sources as radiators, air ducts or direct sunlight.



Make sure the units are not exposed to excessive dust, humidity, mechanical vibration or shock.

CLEANING



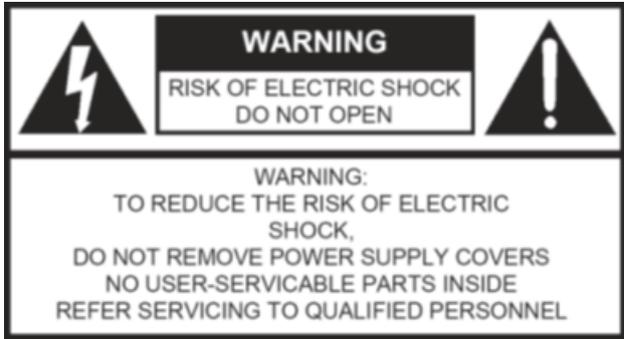
Do not use alcohol, ammonia or petroleum solvents or abrasive cleaners to clean the units.

To keep its original condition it is advised to periodically clean the unit:

- > Use a clean soft cloth that is not fully moist.
- > Make sure the device is completely dry before usage.

Power Connections

For permanently connected equipment, a readily accessible disconnect device shall be incorporated in the fixed wiring; For pluggable equipment, the socket-outlet shall be installed near the equipment and shall be easily accessible.



This label may appear on the bottom of the apparatus due to space limitations.



The lightning flash with an arrowhead symbol, with an equilateral triangle, is intended to alert the user to the presence of un-insulated 'dangerous voltage' within the products enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation mark within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.



To reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture. Do not open the cabinet; refer servicing to qualified personnel only.



To prevent electric shock, do not use this (polarized) plug with an extension cord receptacle or other outlet unless the blades can be fully inserted to prevent blade exposure.



Installation should be performed by qualified service personnel only in accordance with the National Electrical Code or applicable local codes.



Installation should be performed by qualified service personnel only in accordance with the National Electrical Code or applicable local codes.

T-CAM COMPONENTS

The T-Cam Camera Tracking package consists of the following elements:

71.98.1303 OR 71.98.1305 T-CAM PACKAGE

This is the basic camera tracking package. This box contains all the equipment and specific cables required to install a camera tracking system with 2 cameras. It includes the following components:

- › Video switcher: Blackmagic ATEM TV Studio, or Black Magic ATEM TV Studio HD, or ATEM 1 M/E Constellation HD
- › 2 Cameras: IP-CAM 50 or IP-CAM CM70
- › Capture card: Blackmagic Decklink Mini Recorder
- › Camera interconnection cables: VC-AC06 and 2 VC-AC07
- › T-Cam Software: PC software with license for control of 2 cameras
- › BlackMagic Micro Converter SDI to HDMI

71.98.1304 OR 71.98.1306 T-CAM CAMERA & LICENSE

This add-on can be ordered for an additional camera. For the T-Cam solution a maximum of 4 cameras can be controlled, meaning that the basic package can be extended with 2 add-ons. This additional article contains:

- › 1 Camera: IP-CAM 50 or IP-CAM CM70
- › Camera interconnection cable: VC-AC07
- › License allowing additional cameras

71.98.1302 T-CAM NAME OVERLAY

This article is an add-on to the basic T-Cam Package. A name overlay is added onto the video output.

- › License including this add-on



The names for the video overlay come from the CoCon Camera protocol.

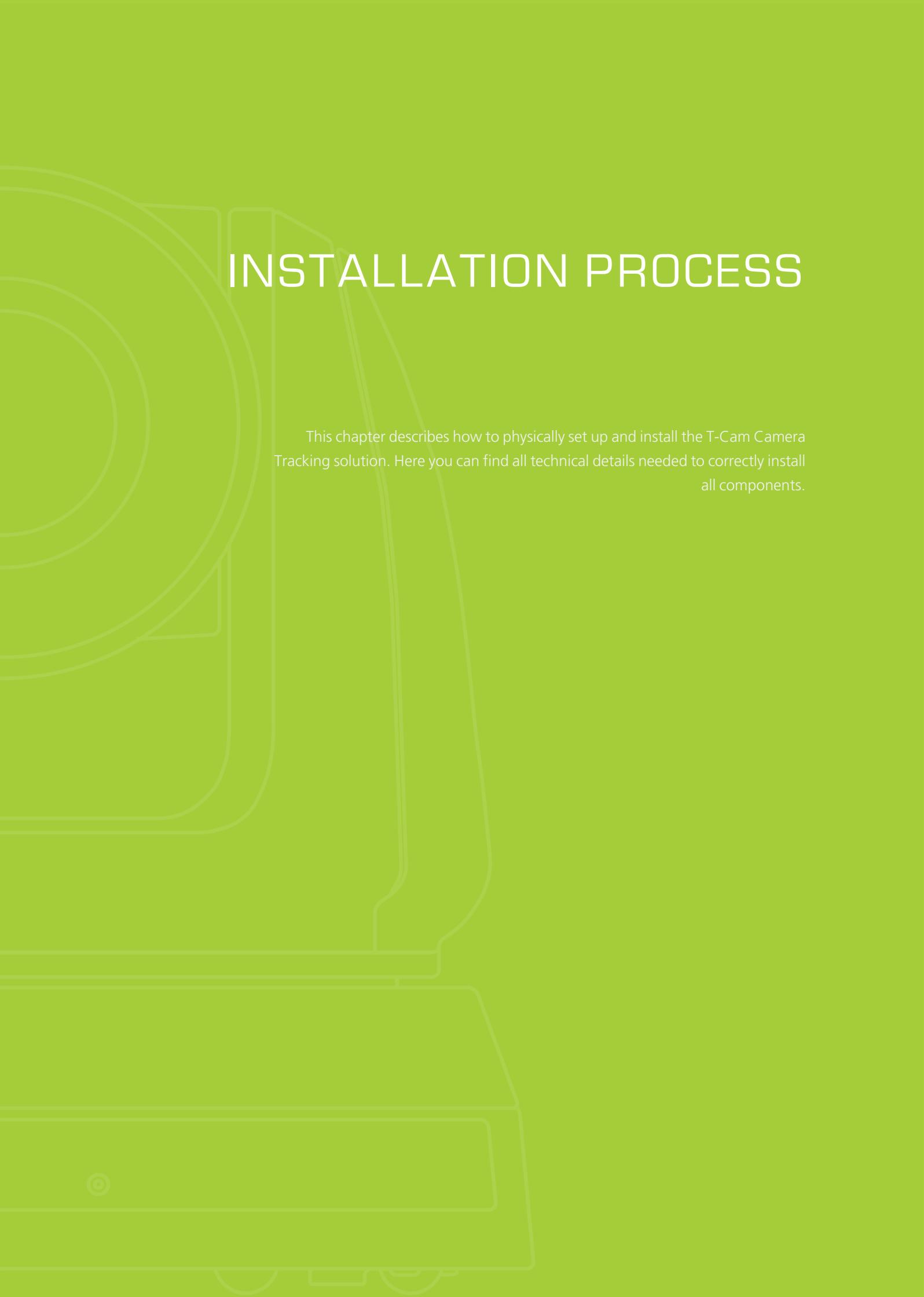
To mount the capture card , a PC with PCI slot is required.

When there is no PCI slot available on the PC, you can use an USB capture card such as the Epiphan AV.io HD (USB 3.0).

GENERAL REQUIREMENTS

PC Requirements

- › The ideal configuration is a desktop PC with 1 PCI express slots. (E.g.: Dell Optiplex 7020).
- › Windows 10 or 11 operating system
- › Configuration on a laptop is possible as well, but the capture cards to feed back the output video into the software for local monitoring cannot be used. A USB to serial convertor is required when the laptop has no serial connection.
- › The software can run on the same PC as the CoCon Room Server.



INSTALLATION PROCESS

This chapter describes how to physically set up and install the T-Cam Camera Tracking solution. Here you can find all technical details needed to correctly install all components.

INSTALL THE CAMERAS AND VIDEO SWITCHER

Camera Control Over Serial Connection

The diagram below shows how to connect the different components needed for the T-Cam Camera Tracking package over a **serial connection** and an **IP connection**. The interconnections are explained in detail in the next paragraphs. With camera control over IP, SDI cables and Ethernet cables run together in a star configuration

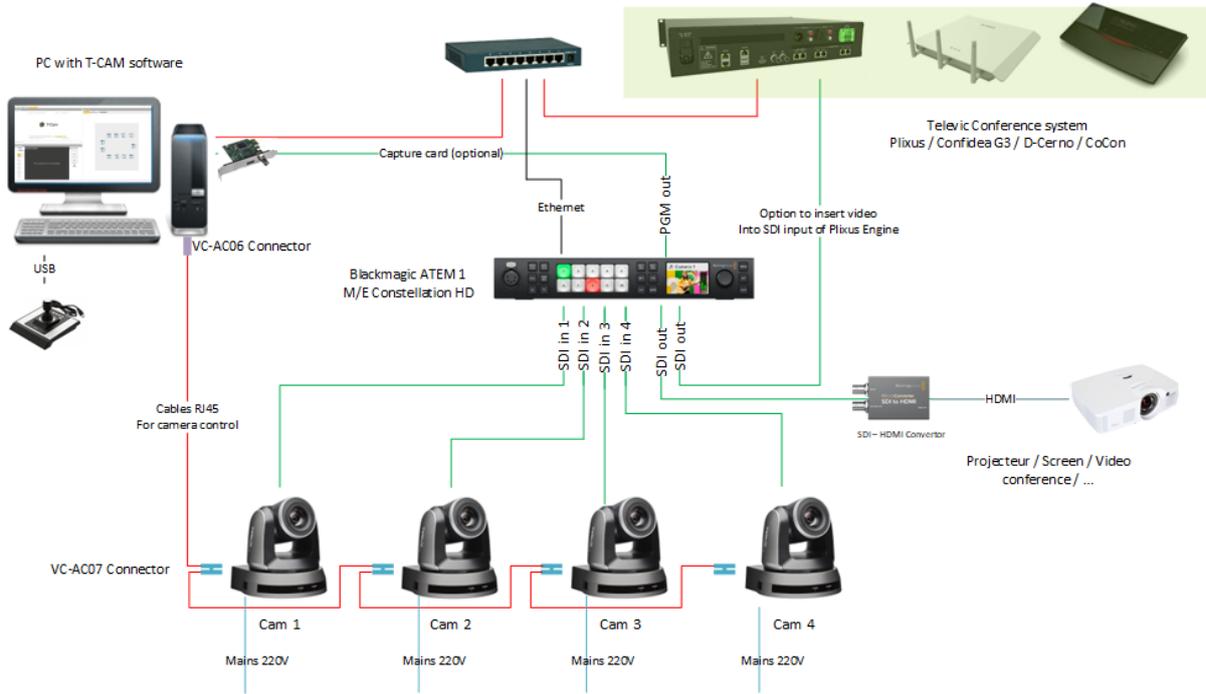


Figure 1-1 Principle serial connection diagram

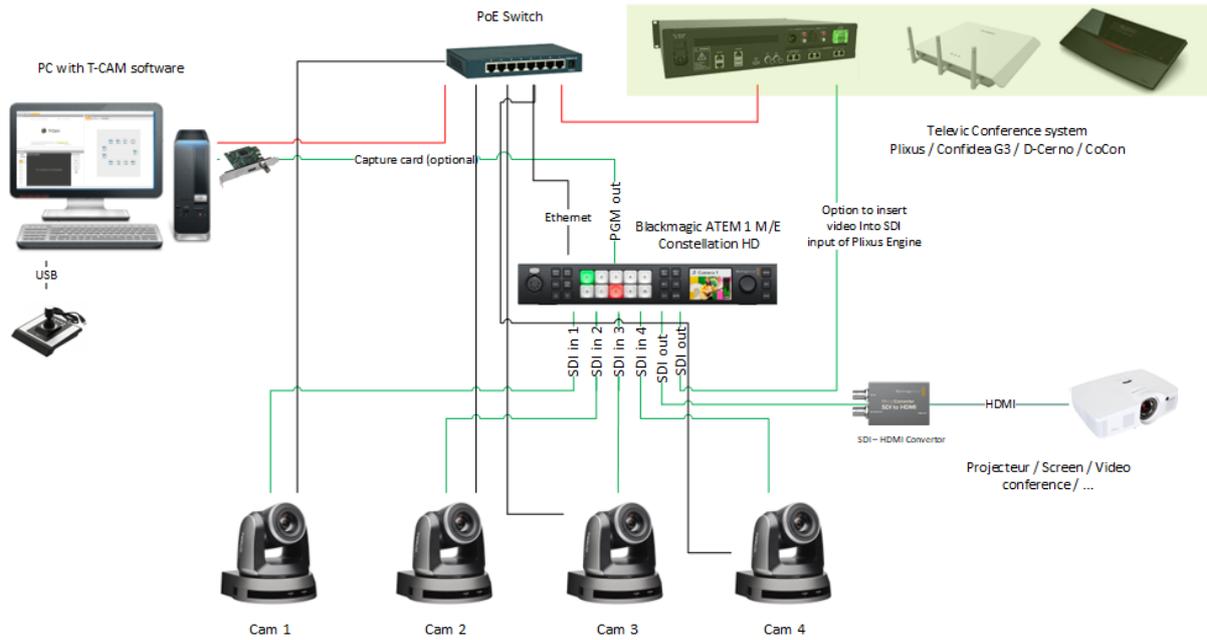


Figure 1-2 Principle IP connection diagram

Set Camera Resolution

All cameras must have the same resolution and must match the **ATEM resolution**. The dipswitch setting for the available resolutions can be found in the table below. See also sticker on bottom of the cameras for available settings



Legend:

Output Mode	Settings
1280x720/50p	
1280x720/59.94p	
1920x1080/50i	

Output Mode	Settings
1920x1080/59.54i	

Camera Installation And Connections For Serial Connection

1. The VISCA protocol must be set on **9600 baud rate** on the cameras. (Default setting)
2. As can be seen on the main diagram ("Principle IP connection diagram" on the previous page), the **control signal** coming from the PC is linked to the.
3. Connect the PC serial port with the VISCA daisy chain by using the VC-AC06 cable.



On laptops, a serial-to-USB convertor might be required, this is not included in the package).

4. To connect the cameras, use the VC-AC07 cables.



The RJ45 CAT 5e cables between the VC-AC cables are not included.

5. After connecting the cameras, make sure the addresses are set correctly with the rotary switch on the back of the camera. The first camera after the PC is camera 1, second will be camera 2 and so on.



6. Plug in the cameras to the ATEM Television Studio via SDI:
 - a. Camera 1 to IN 3 SDI
 - b. Camera 2 to IN 4 SDI
 - c. Camera 3 to IN 5 SDI (optional)
 - d. Camera 4 to IN 6 SDI (optional)

7. ATEM Television Studio HD via SDI
 - a. Camera 1 to IN 5 SDI
 - b. Camera 2 to IN 6 SDI
 - c. Camera 3 to IN 7 SDI (optional)
 - d. Camera 4 to IN 8 SDI (optional)
8. Connect the ATEM Prog SDI or Prog HDMI to the PC or USB capture card to have the image on the PC and/or to an another output device (screen, projector, video conference, Plixus multimedia engine, ...).

Camera Installation And Connections For IP Connection

1. The VISCA protocol must be set on **9600 baud rate** on the cameras. (Default setting)
2. As can be seen on the main diagram ("Principle serial connection diagram" on page 22), the **control signal** coming from the PC is linked to the PoE switch and the ATEM TV Studio HD video switcher.
3. You do not have to switch the rotary switch on the back of the camera, you can leave it on 0 or 1.



4. Connect each camera to the PoE switch. This switch can also provide power preventing the need to power the cameras separately.
5. Plug in the cameras to the ATEM Television Studio via SDI:
 - a. Camera 1 to IN 3 SDI
 - b. Camera 2 to IN 4 SDI
 - c. Camera 3 to IN 5 SDI (optional)
 - d. Camera 4 to IN 6 SDI (optional)
6. ATEM Television Studio HD via SDI
 - a. Camera 1 to IN 5 SDI
 - b. Camera 2 to IN 6 SDI

- c. Camera 3 to IN 7 SDI (optional)
 - d. Camera 4 to IN 8 SDI (optional)
7. Connect the ATEM Prog SDI or Prog HDMI to the PC or USB capture card to have the image on the PC and/or to an another output device (screen, projector, video conference, Plixus multimedia engine, ...).

CONFIGURATION OF VIDEO SWITCHER AND INSTALLATION OF T-CAM SOFTWARE

1. **Download** all software from <https://www.televic.com/en/conference/support/softwareupdates/tcam-software-updates>
 - a. T-Cam Setup
 - b. Install the Blackmagic Atem TV Studio driver 8.0 for ATEM TV Studio HD and ATEM 1 M/E Constellation HD, or Blackmagic Atem TV Studio HD driver 8.7.1 for ATEM TV Studio (non HD type)
2. Install the **Atem TV Studio HD driver 8.7.1**
3. **Restart** the PC
4. **Install** the **capture card** in the PC.
5. **Install T-Cam software.**
6. **Check Declink driver version** and Install **Desktop Video Installer**

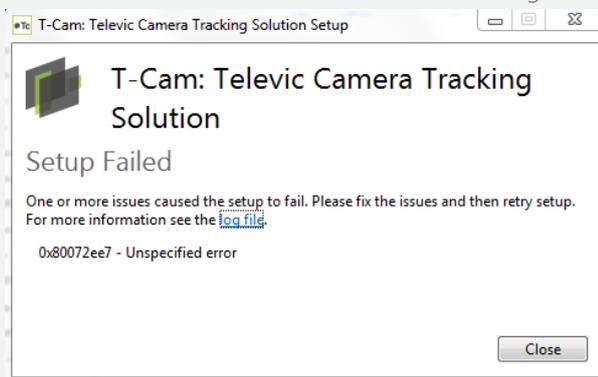
For Windows 10 and 11, use v12.4.1



If after update and reboot of PC , an update of firmware is requested , click OK or accept.



When an error occurs: please run the following installer: **NDP452-KB2901907-x86-x64-AIIOS-ENU** to install .net 4.5.2. After restarting the PC, run the installer again.





The latest version of Black Magics and drivers can be found here:

<https://www.blackmagicdesign.com/support/family/capture-and-playback>

7. **Plug in the ATEM** via USB, and Ethernet (the PC and the ATEM must be on the same network).
8. Run the **Blackmagic ATEM Setup** to set a **fixed IP** for the ATEM switcher that will be valid for the network.

ATEM 1 M/E Constellation HD
ATEM 1 M/E Constellation HD

Setup Documentation

Label: ATEM 1 M/E Constellation HD

Language: English

Software: Version 8.7

Network

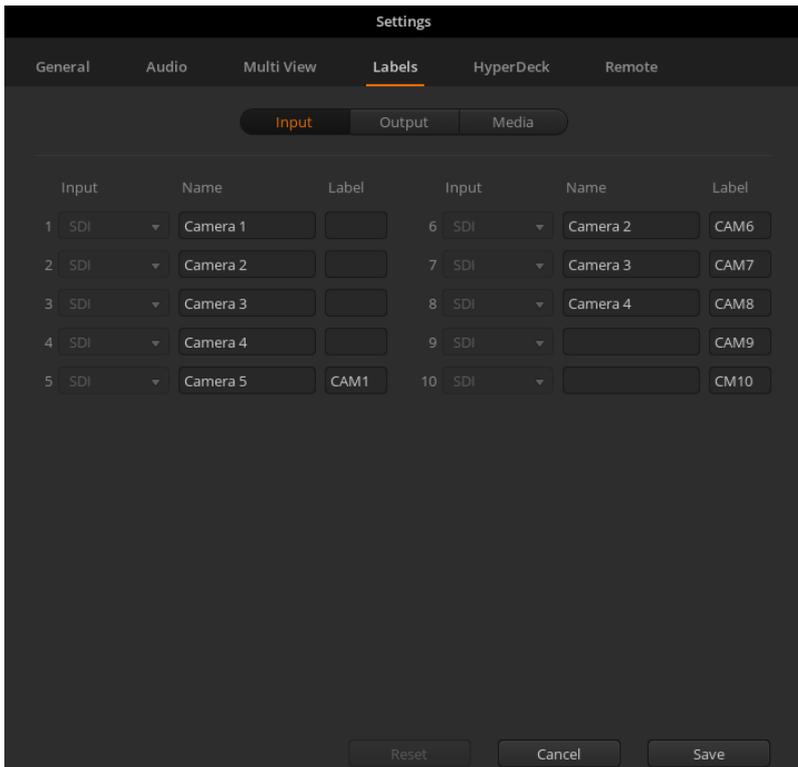
IP Address: 192.168.0.23

Subnet Mask: 255.255.255.0

Gateway: 192.168.0.1

Cancel Save

9. Run the **ATEM Software Control**.
10. The following window is shown:



11. From the **File menu**, select, **Restore** and load C:\Program Files (x86)\Televic Conference\TCam\ATEM_config.xml. This ensures that the labels and references are set correctly.
12. Click the **Settings icon** in the bottom left corner of the window to open up the settings. In the General tab, set the Video Standard to the same resolution as your cameras.

Possible Resolutions for ATEM Television Studio (HD) are:

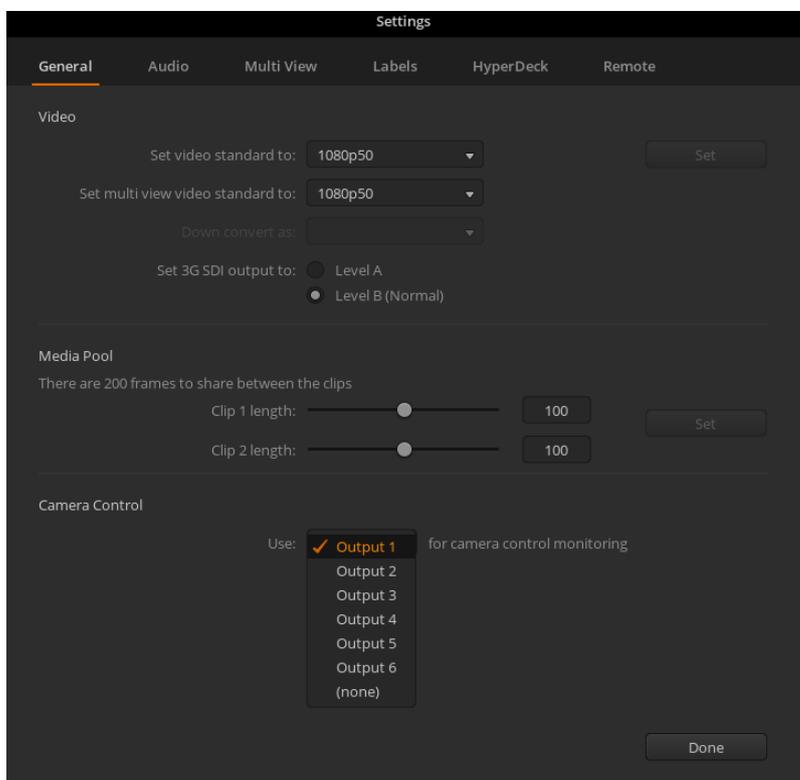
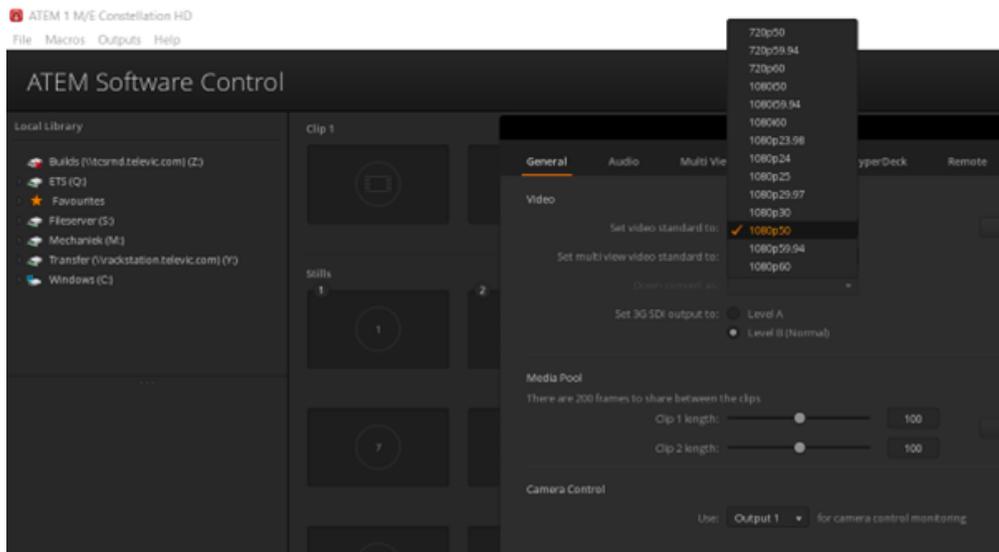
- a. 720p50
- b. 720p59.94
- c. 1080i50
- d. 1080i59.94



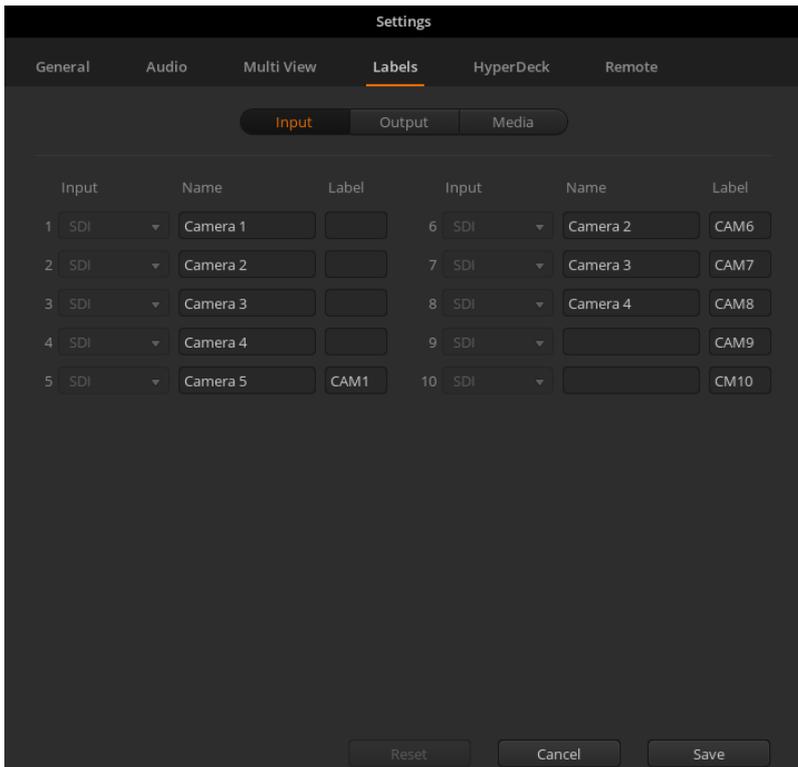
Make sure selected resolution is corresponding with resolution settings in capture card and on cameras!

We recommend the **highest resolution** (1080p59.94).

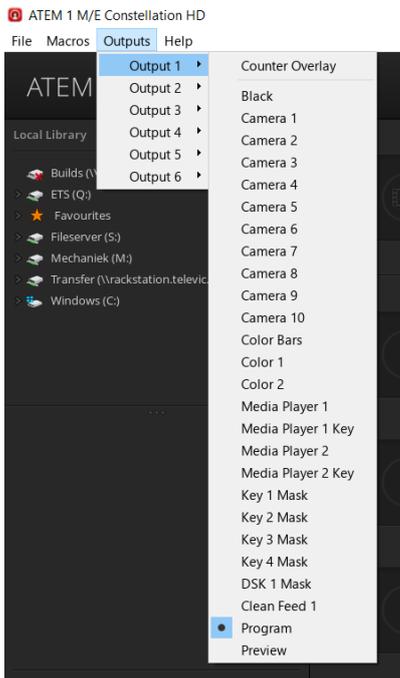
Click on **Set**, then press the **Done** button at the bottom to save the settings.



- In the labels tab, verify the **input sources settings**. In case **ATEM 1 M/E Constallation** is used, see below:



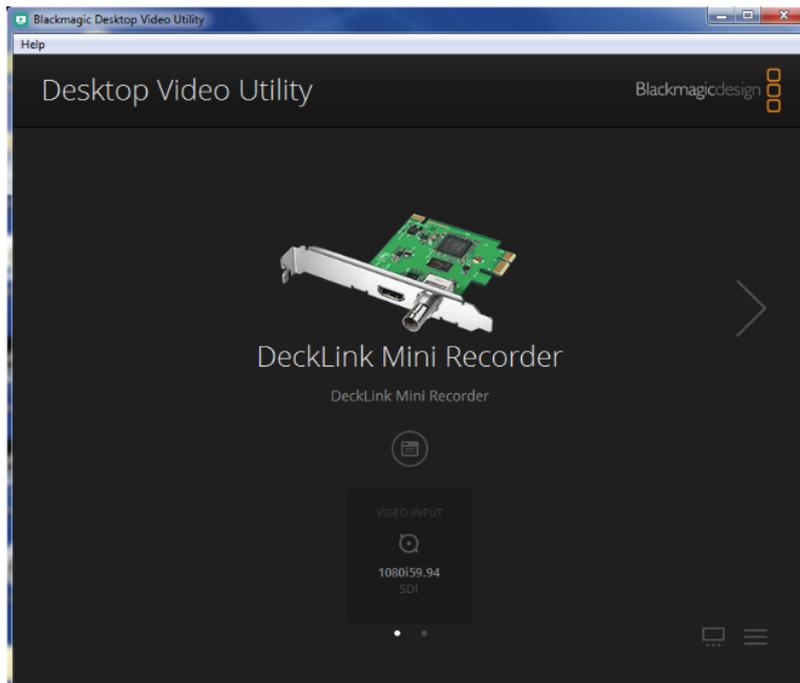
Then select the Program (PGM) output:



With ATEM 1 M/E Constellation, SDI IN 1 is used as static input instead of HDMI 1.

- When the capture card is used, open **Blackmagic Desktop Video Utility**.

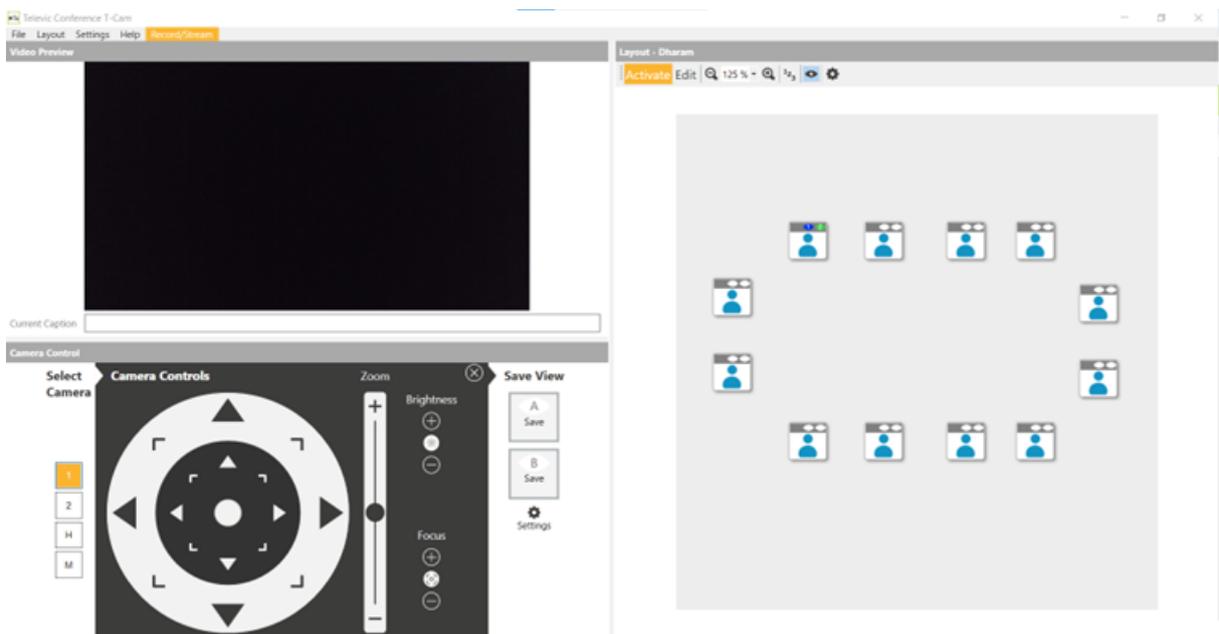
15. Click the icon under the card and select the **SDI icon** (not HDMI).



CONFIGURE T-CAM SOFTWARE

License And Startup

1. Start T-Cam
2. You will be asked to provide a license file. This license file is linked to the MAC address of your Ethernet or Wi-Fi port. Please email this information, together with the order number to cocon-license@televic.com
3. Navigate to the **license file** which is linked to your Ethernet or Wi-Fi device.
4. Once the software is opened, you'll see the following screen:

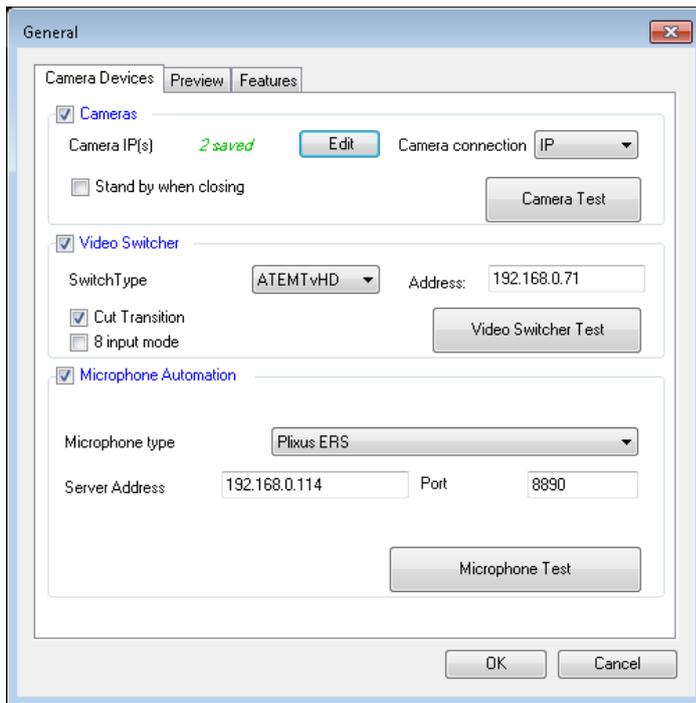


The user interface is divided into **three parts**:

- › On the right-hand side, a **synoptic** is shown. There the activity of the room and camera preset status can be verified or adjusted.
- › On the top-left side, the **return feed of the capture card** is shown (if configured).
- › On the bottom-left side, the **camera selection and camera joystick** are shown.

General Settings - Cameras

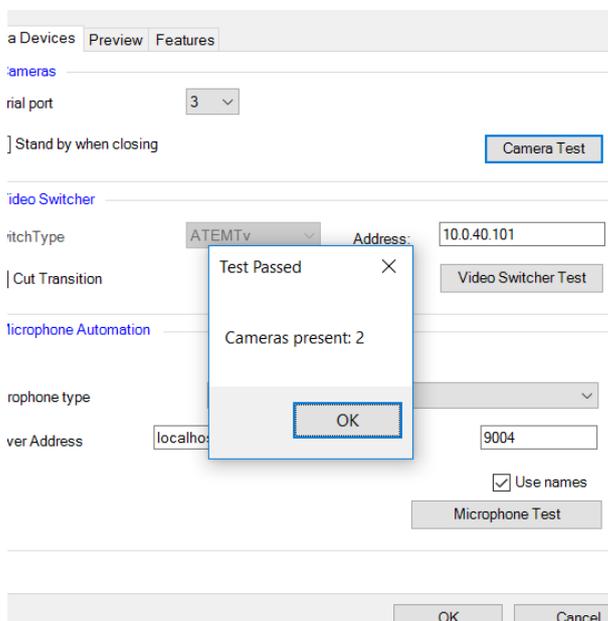
Select **Settings** from the menu, there you find the following screen:



FOR SERIAL CONNECTION

In the **Camera Devices** tab, tick the **Cameras** box:

1. Select the **correct serial port** and click **Camera Test**, this detects the number of connected cameras.



2. Tick **“Stand by when closing”** if you want the cameras to enter stand-by when the software quits.



If the number of cameras is not correct, please verify if all cables are connected correctly, if you license allows that number of cameras and if the dipperswitches on the cameras are in matching order.

FOR IP CONNECTION

1. For **Camera connection** select **IP**.

General

Camera Devices Preview Features

Cameras

Camera connection IP (Lumens) Camera IP(s) 2 saved Edit

Stand by when closed

Camera Test

Video Switcher

SwitchType ATEMTvHD Address: 192.168.0.240

Cut Transition

8 input mode

Video Switcher Test

Microphone Automation

Microphone type DCerno

Listen port 9050

Microphone Test

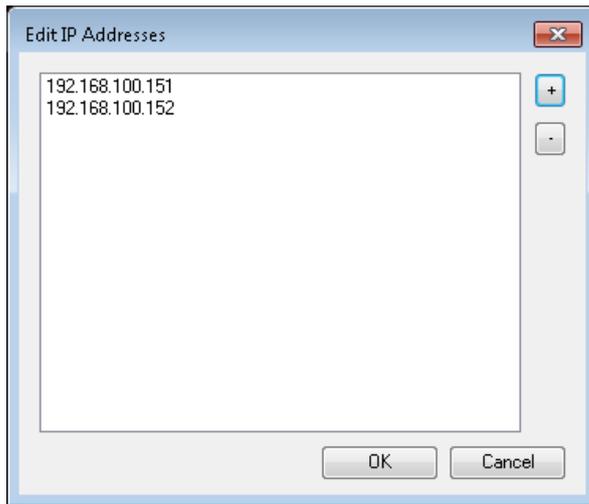
OK Cancel

2. Click **Edit** to add the IP addresses of the cameras.



Configure the IP addresses of the cameras via the remote control and connect camera output to a screen to see the configuration menu.

3. Add and remove IP addresses using the respective buttons. You need to add the cameras in the correct order (CAM1, CAM2, ...)



The default camera IP addresses are as follows:

- Lumen camera IP-CAM50: 192.168.100.15
- Avonic camera IP-CAM CM70: 192.168.5.163

General Settings – Video Switcher

Select the **Video switcher** box

1. Enter the **IP address of the ATEM switcher** (specified above), click on **Video Switcher Test** to check that communication with the switcher works. The detection happens on the network.



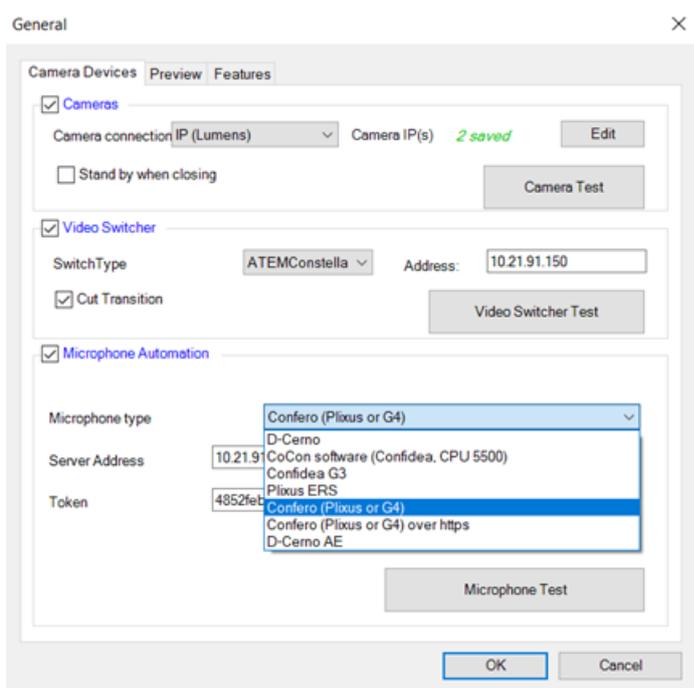
If the switcher is not detected, please verify if the cables are connected correctly, the IP address is correct and if subnets match. Also bear in mind that Atem TV Studio driver 7.2 has to be used (not higher or lower).

2. Tick "**Cut Transition**" if you want cameras to switch instantly instead of fade.

See "Full screen and preview video output" on page 52 for preview settings

General Settings – Microphone Automation

Select the the **Microphone Automation** box:

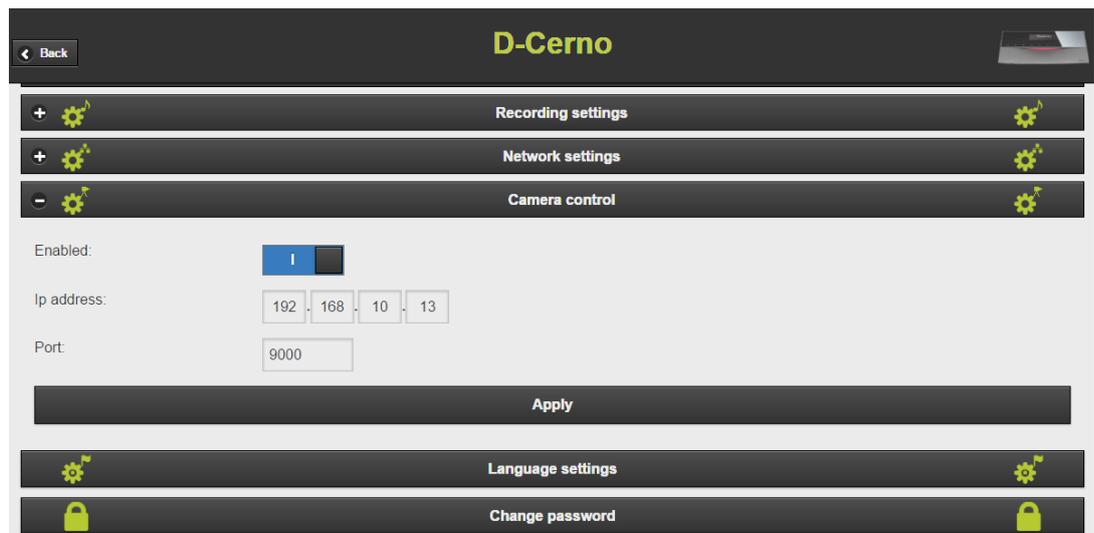


Choose your conference system type, the conference system needs to be on the same network and subnet.

› **D-Cerno with D-Cerno CUR central unit:**

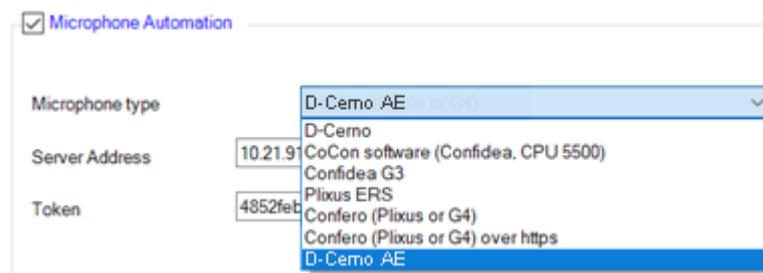
- › D-Cerno CUR uses a **UDP protocol**, so it sends packets to the destination address specified.
- › In the **D-Cerno web page**, set **camera control IP address** to match the T-Cam computer's IP address and specify the port (example: 9000)

- › In **T-Cam**, specify the same **port**.



› **D-Cerno with D-Cerno AE central unit:**

- › D-Cerno AE also use a **UDP protocol**. So it sends packets to the destination address specified.
- › Make sure that the **Microphone type** is set to **D-Cerno AE**:

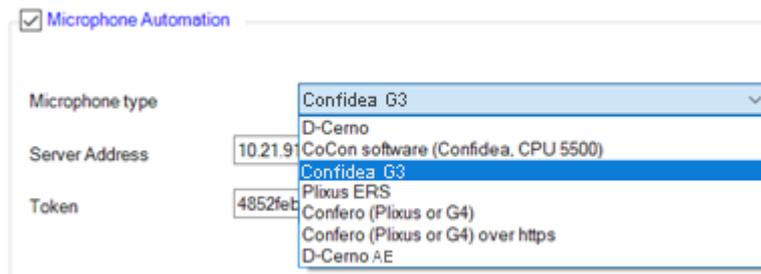


- › In the **D-Cerno AE web server**, set the **camera control IP address** to match the T-Cam computer's IP address and specify the port (example: 9000).
- › In T-Cam, specify the same port.

› **Confidea G3 with Confero:**

- › Confidea G3 with Confero also use a **UDP protocol**. So it sends packets to the destination address specified.

- › With Confero, make sure that the **Microphone type** is set to **Confidea G3**:



- › In the **Confidea G3 web server**, set the **camera control IP address** to match the T-Cam computer's IP address and specify the port (example: 9000)
- › In T-Cam, specify the same port.

› **CoCon:**

- › For CoCon, the **REST API** is used. This means that you need to make sure the REST API is running on the Room Server (cf. CoCon manual).
- › This selection is needed to use with TCS5500 , Confidea CU , Confidea G2 and Cocon non-ERS
- › In T-Cam, specify the **IP address of the Room Server** (localhost or other machine's IP address). The port is always **8890**.
- › If you want to receive the names from the delegates to be used in the **name overlay**, check "**Use names**". Otherwise uncheck this.

› **Plixus Core:**

- › For Plixus Core, the REST API is used. This means that you need to make sure the **REST API** is running on Core. (In Core, go to **Network** -> **REST API** -> **Enable REST API**).
- › In T-Cam, specify the IP address of the Plixus Engine and the port is always 8890.
 - › Make sure you **uncheck "Use names"**.

› **Confero and Confero with Certificate:**

- › Copy/paste the API token from the Confero webserver and enable "use names" in case delegate names from Confero 360 meeting are to be used for nameoverlay.

Microphone Automation

Microphone type: Confero with certificate

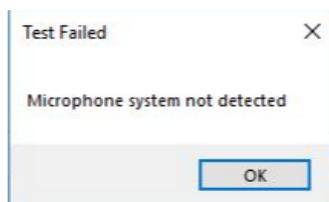
Server Address: 192.168.0.100 Port: 9443

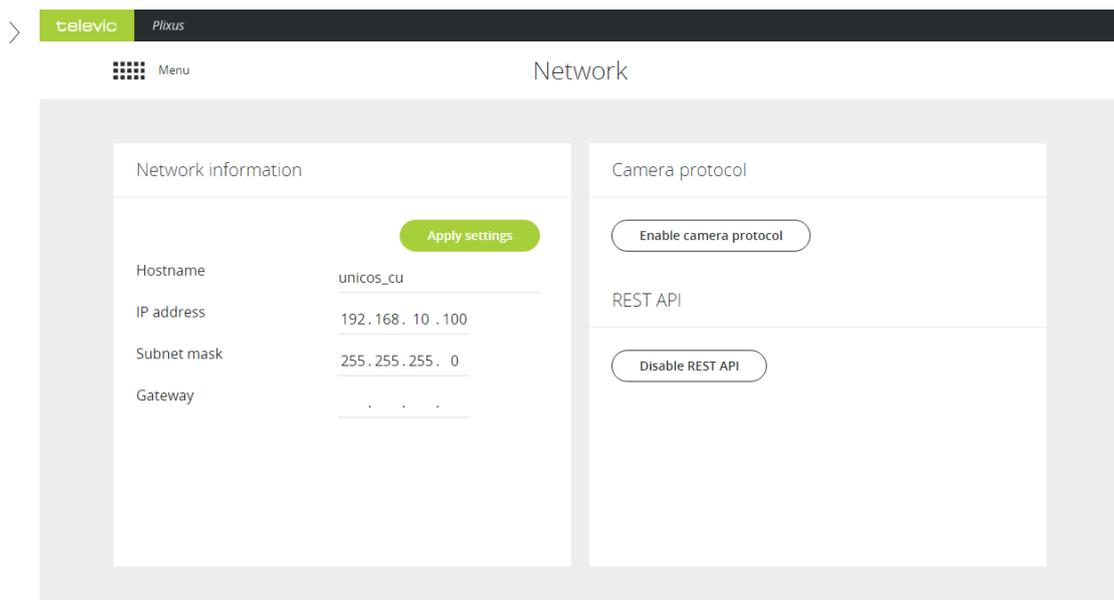
Token: 185b33e8-9e70-457c-8e9a-97 Use names

> **Plixus – T-Cam compatibility overview**

T-CAM connected to		Compatible with T-CAM
Confero G4/Plixus		Yes
Plixus Core (no Cocon)		Yes (no name overlay via Plixus Core)
Plixus Core with Cocon server running	Names assigned to seat or known badge inserted	Yes
Plixus Core with Cocon server running	No name assigned to seat and no known badge inserted	No
CoCon	Cocon Names assigned to seat or known badge inserted	Yes
CoCon	Cocon No name assigned to seat and no known badge inserted	Yes

- > If a message appears that microphone system can not be detected , check **firewall settings** and if needed create an inbound and outbound rule in advanced Firewall Settings to allow connection by c:\Program Files (x86)\Televic Conference\T-Cam\T-cam.exe





- For **D-Cerno**, **Confidea G3** and **Confidea G4**, a Windows firewall window can appear, please allow for the firewall to be created. The software will then wait for you to press a microphone to be able to check communication.

ACTIVATE PREVIEW

If you have a capture card:

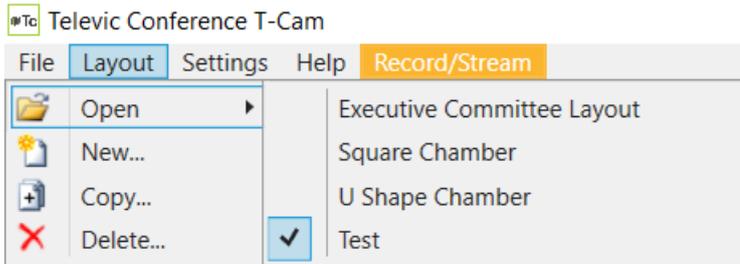
1. In the preview tab, select **Video Preview**.
2. Select the **correct capture card** and click on **Properties** to choose the correct resolution.
3. Click **OK** to close the settings page.

LAYOUT AND CAMERA CONTROL

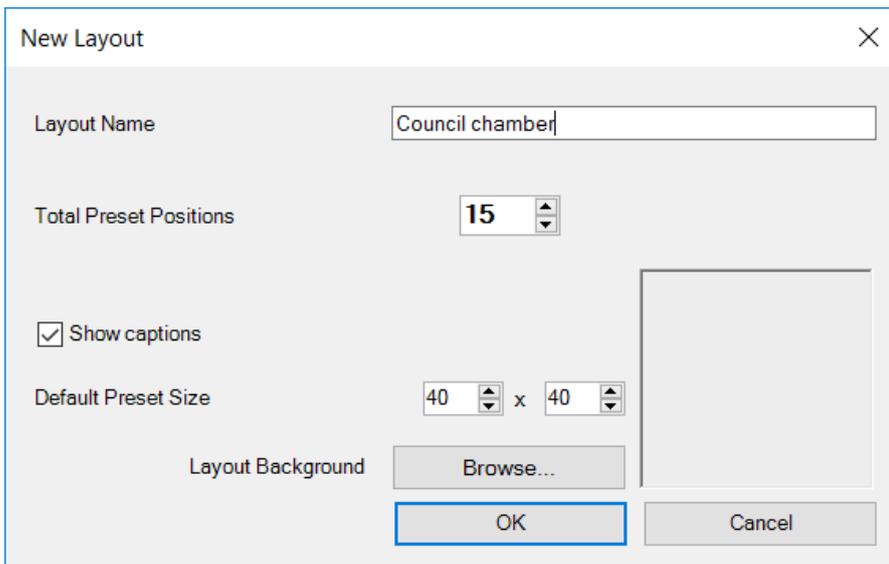
First we create the layout on the right hand side of the screen.

Add Or Copy A New Layout

1. From the **Layout** menu at the top of the application, you can select a new layout or copy an existing layout.

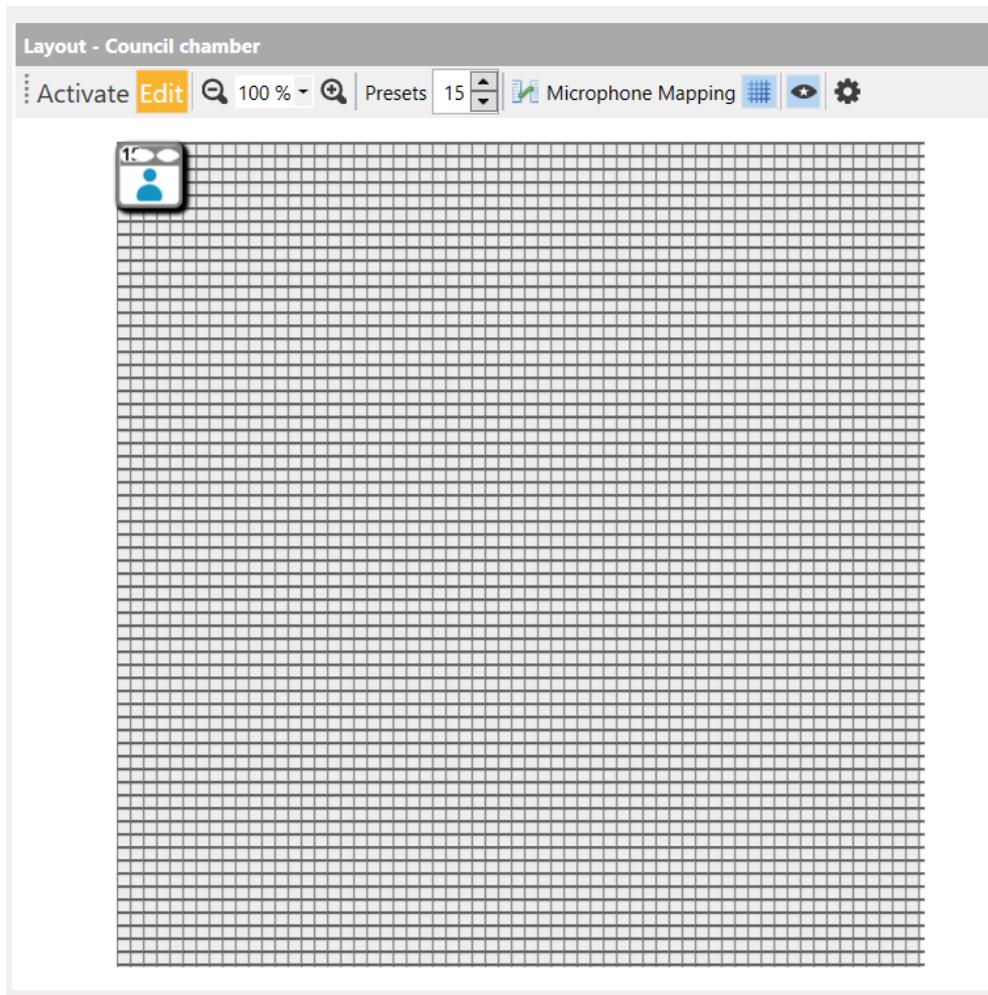


2. Simply give the new layout a unique **Layout Name**.
3. Then set the **total preset positions** as number of microphones available in the room.



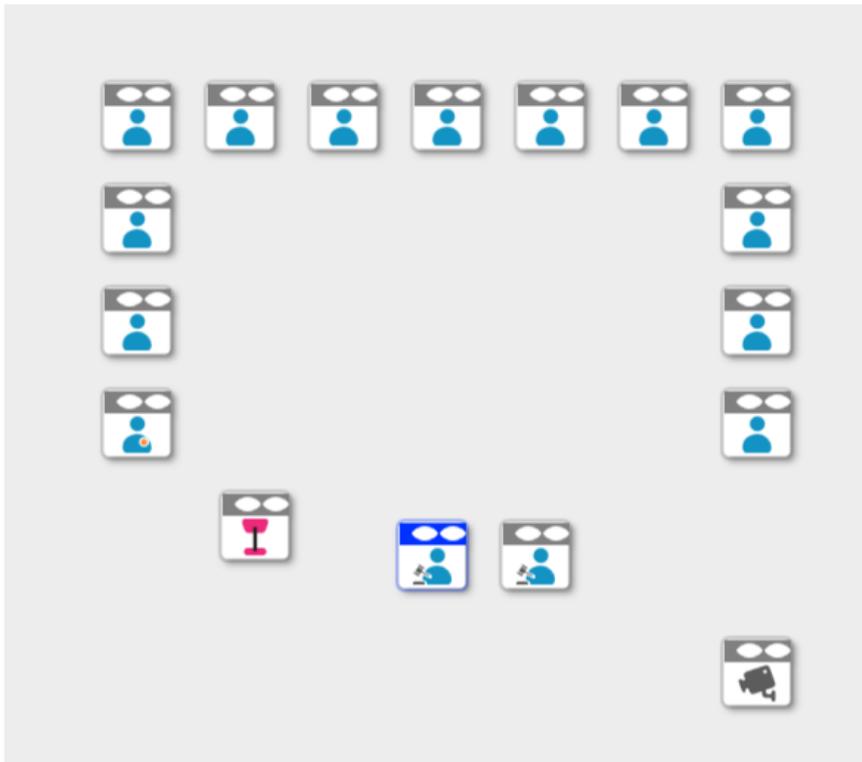
Edit A Layout

1. Click **Edit Button** on the **Layout** (right pane in the application).



2. To add or delete a preset, simply use the **preset arrow buttons** up to add, down to delete OR right click anywhere on the grid to bring up the Add Preset box.
3. Drag the preset anywhere on the grid
4. Try to **mirror the microphone layout** by doing this for each preset.
5. To add a **wide shot preset**, add 1 additional preset.
6. To Save the layout and start using it to move cameras, simply click Activate.
7. Each icon can be modified to add more structure in the synoptic by right-clicking and choosing

“Change preset type”. A number of icons are listed.

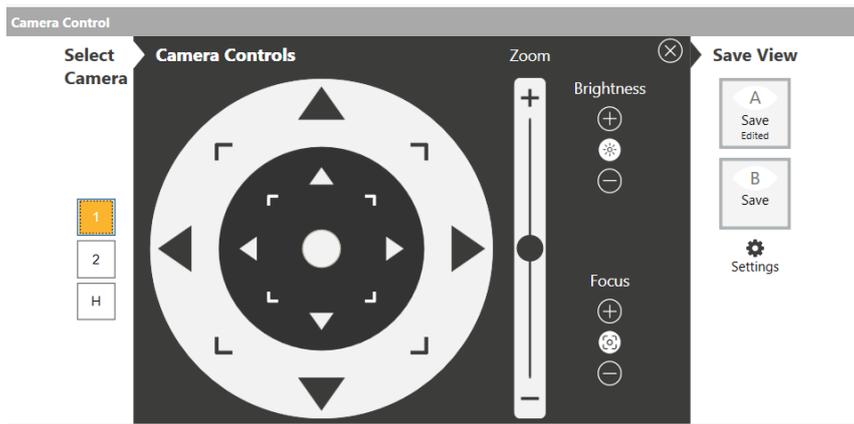


Be careful when using the **preset down arrow** - it will delete existing presets and their camera positions.

Making Camera Presets

1. Click **Activate Button** on the layout.
2. Select the **Preset** to be changed.
3. **Choose** the **camera** you want to use (in Camera Control, bottom-left pane of the application).
4. **Move** the **camera** using the virtual joy stick
5. **Zoom** the camera with the zoom stick

6. **Save** the camera position to the preset by selecting A Save or B Save.



Repeat steps 3 – 6 to save camera view B for the same preset.

T-Cam functions best if you have view A and view B set for each preset using different cameras, the software automatically avoids camera panning by choosing the best view (you can turn off this option by clicking on the “Always use best view” icon in the Layout pane).



7. Select the preset to test the new camera positions are correctly saved.
8. **Brightness and focus** can also be set to manual for each preset for difficult lightning conditions.

Camera Controls & Shortcuts

Below are the equivalent keyboard shortcuts you can use to control all the camera functions:

SELECT CAMERA

- > Keyboard shortcut: Top Line numbers 1,2,3,4, 8 for H



H stands for HDMI1 which is the first input on the ATEM. This can be used to plug in a laptop for presentations. The input needs to have the same resolution as the cameras.

CAMERA CONTROLS

- > Keyboard shortcut:
 - > up, down, left, right: W,S,A,D

- > Top left, top right, bottom right, bottom left: Q,E,Z,C
- > Ctrl Key: fast movement

CAMERA ZOOM

- > Keyboard shortcut:
- > Zoom in: + Zoom out: -



It is also possible to use a joystick to move the camera and zoom. We recommend the Axis T8310 but any windows compatible joystick should work.

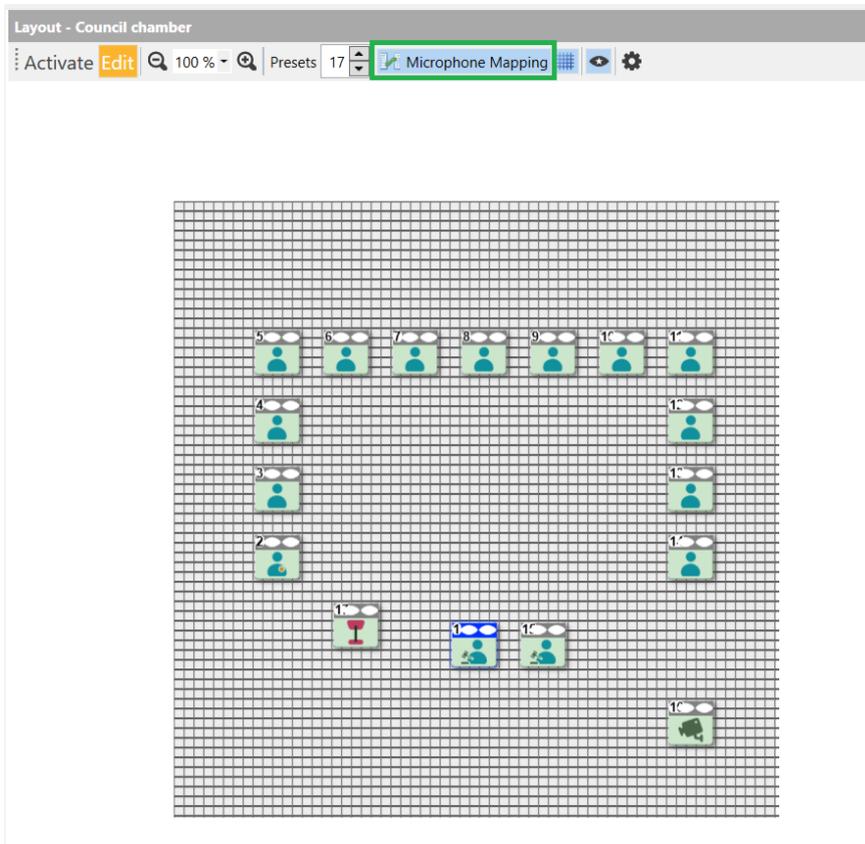
MICROPHONE AUTOMATION

Now you coupled camera presets to the synoptic seats, you need to couple the synoptic seats to the physical units. You can do this in 2 different ways:

- › **Automatically** by activating the microphones
- › **Manually** by entering the seat ID's

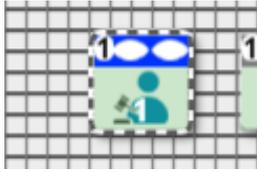
Automatic Configuration Of Microphone Automation

1. In the **Edit** mode, click the **Microphone mapping** label. All icons on the synoptic are now green.



When the icon is not shown, first click the Cog wheel icon. Then on the pop-up window, check the "Microphone mapping" checkbox.

2. Select **preset 1** and press the **corresponding Televic Microphone** on then off again. This action sends an API event and a number should appear on the bottom of the preset to indicate that it has been mapped.



3. Remember to **deactivate** the microphone before you select the next seat.
4. The process can be done for all seats on the synoptic.

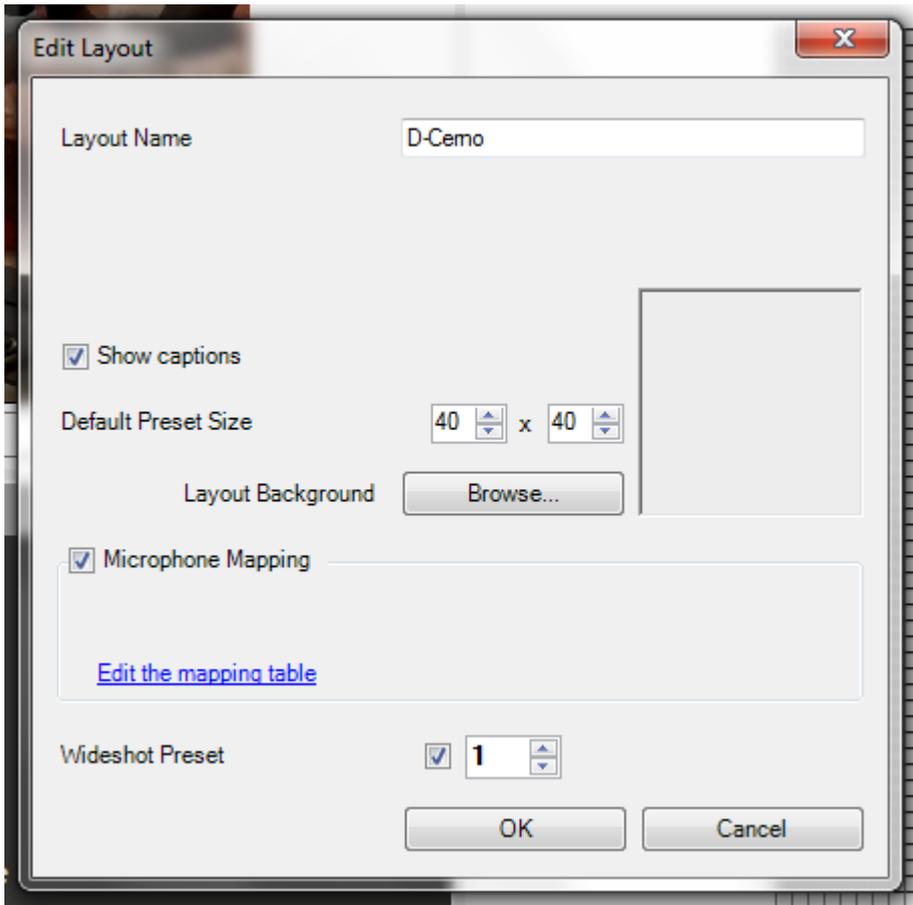


For D-Cerno, a 9 digit number will be shown instead of the microphone ID as D-Cerno's plug and play architecture does not use microphone ID's.

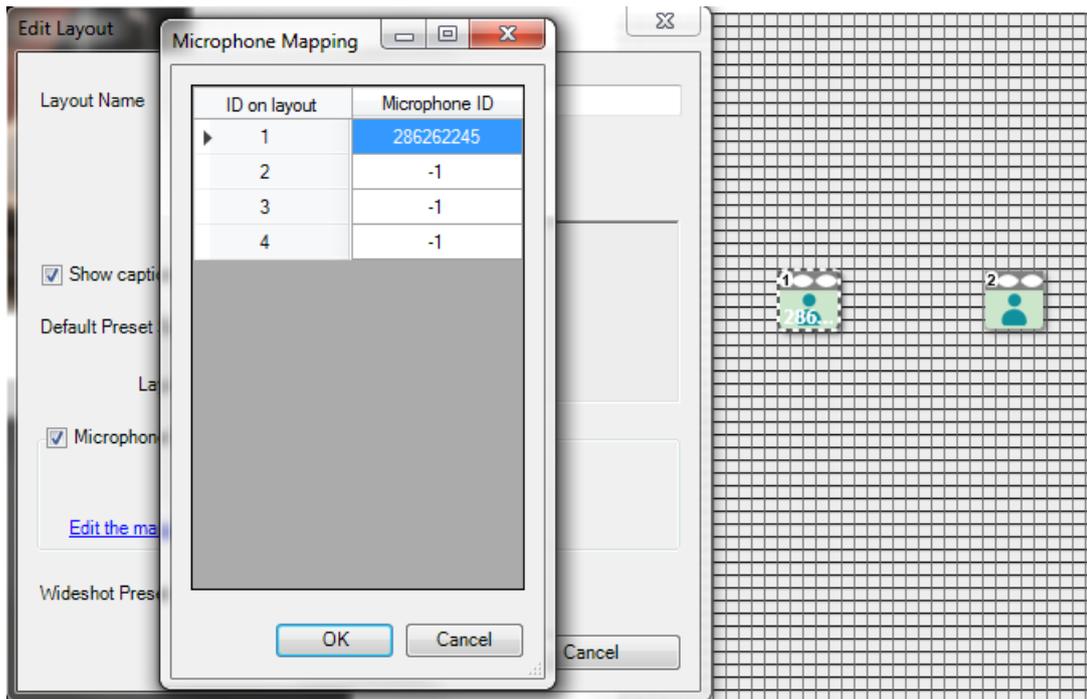
Manual Configuration Of Microphone Automation

It is also possible to do the mapping manually (if access to the floor is difficult, if the conference system is not available or you want to prepare everything offline).

1. Click on the **settings** icon (Cog wheel).



2. Then click **Edit the mapping table**.



3. As shown, here you can **manually adjust the mapping** of the microphones. To unmap, enter “-1”.

Wideshot Preset

Add an extra preset on the layout (please the note the preset number on top left of icon).

Go back to Activate mode to set the camera to a wideshot of the room. Go to Edit properties in the layout (Cog icon), and set the Wideshot Preset to the last preset number of the room layout.

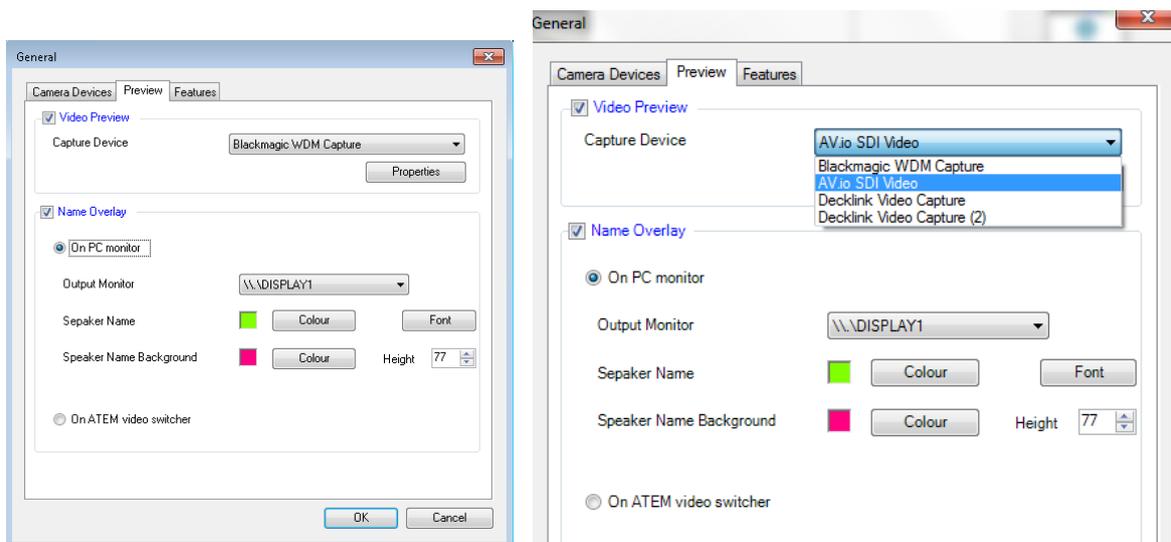
This way when no microphone is active, the camera will go to the wideshot preset.

Test each microphone to see if tracking is working.

FULL SCREEN AND PREVIEW VIDEO OUTPUT

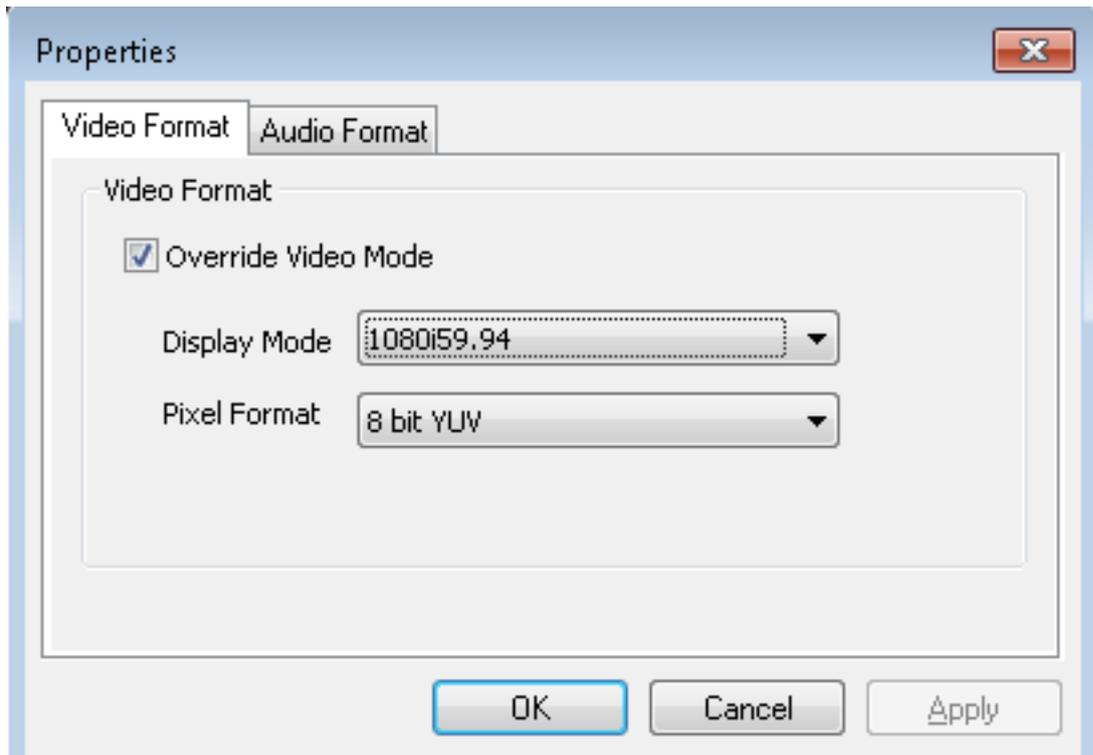
In the **Video Preview** settings select as capture device **Blackmagic WDM Capture** or **AV.io SDI Video**, depending on what you used. The full screen video output can be shown on a second screen of the PC or on a screen connected to the ATEM switch. (see table below for various possibilities).

Name overlay is an extra module available for T-Cam (license depending). It allows to display the mixed video and overlays with the speaker names. To turn it on, go into the top menu > Settings > General... > **Name Overlay**.



If Epiphan AV.io HD is used , a USB 3.0 connection is needed to obtain a fluent image!

For the **Video capture device** , click on **Properties** to select the correct resolution in case the card does not do auto detection. (1080i 59.95 8bit) ; enable "Override Video Mode"



Select the **Output monitor** that will display the video.

- In case **name overlay** is activated on the **PC screen** , you can **change the colour, font and height** of the speaker names.
- In case **name overlay** is activated on the **ATEM output** , then the **overlay properties are fixed**

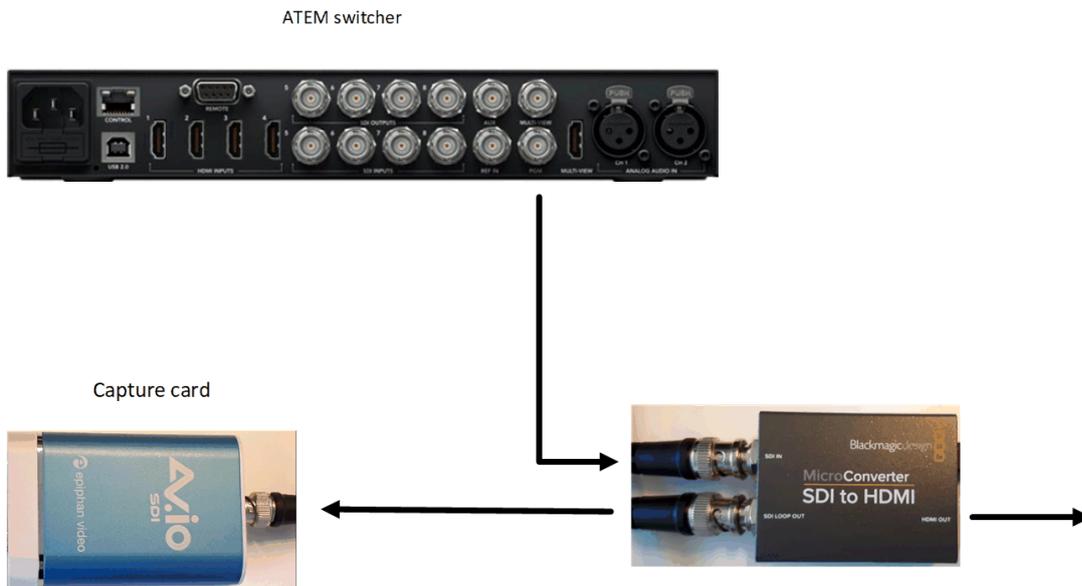
Press **OK** to apply the settings.

Press a microphone with a name attached to it (the name should appear in current caption in the Video Preview). The name should also appear as an overlay on top of the video in full screen on the monitor selected.



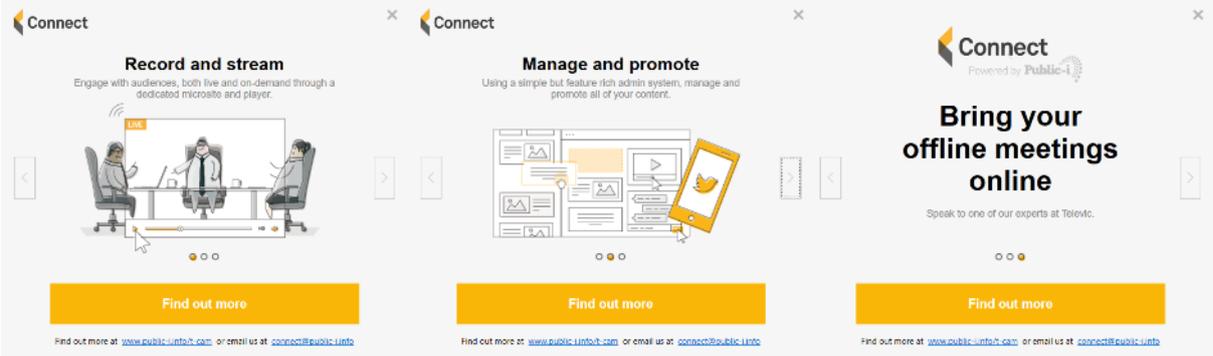
	PC screen 1	PC screen 2	ATEM output
Name Overlay Off	Preview	Full view	Full view
Name Overlay on PC	Preview	Full view + adjustable Name Overlay	Full view
Name Overlay on ATEM	Preview with fixed Name Overlay	No image	Full view with fixed Name Overlay

In case of "Name Overlay on ATEM" is used , the PROG SDI (PGM) OUT of ATEM switcher can be fed to the external screen and to the capture card b.m.o. a SDI to HDMI convertor with SDI Loop Out connection



RECORD AND STREAM

T-Cam software offers a wealth of valuable features, but by clicking on the **Record/Stream** button in the top menu, you can learn how to upgrade to record and stream live and on-demand video.



FREQUENTLY ASKED QUESTIONS

1. **Is there any way to capture audio from the Blackmagic card**

The T-Cam software does not capture audio, another capture card and software will be needed for that.

2. **Is it possible to use the ATEM Television Studio streaming utility to capture the session?**

yes

3. **Does T-CAM software block ATEM communication between other third party systems or the Black magic software if it is installed in the same PC?**

ATEM software can be used in conjunction with T-Cam on the same PC.

4. **Can they another blackmagic capture system in the same T-CAM PC be used to capture in parallel the session ?**

Yes providing the PC has enough resources for T-Cam to function.

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GET IN TOUCH

