DISCLAIMER AND CONTACT

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Contact Info
For any questions or suggestions, contact your reseller or local distributor of Avonic.
Visit the Avonic website www.avonic.com to find your local Avonic distributor or to download the most recent version of the documentation.

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Instagram: www.instagram.com/avonicPTZ
LinkedIn: www.LinkedIn.com/company/avonic
YouTube: www.youtube.com/channels/avonic
Twitter: www.twitter.com/avonic
IMPORTANT INFORMATION

Liability
Avonic will NOT be held responsible for any damage or injury caused by unqualified persons carrying out these tasks, or by not following the instructions in this Manual.

Intended Use and Non-Intended Use

Installation

**CAUTION** The following applies to the **installation** of the Product:
- The installation activities described in this Manual should ONLY be executed by experienced technicians.
- The installation activities should NOT be executed by minors, mentally disabled persons or other persons not qualified to perform these tasks.

Operation

**CAUTION** The following applies to the **operation** of the Product:
- The operational activities described in this Manual should ONLY be executed by people with enough technical knowledge to perform the activities in a safe manner.
- This Product is specifically developed for video conferencing / streaming via internet by companies, institutes and universities. It is NOT meant for private use in the residential area.
- This Product is NOT a medical device and should NOT be used as a substitute for professional medical judgment. It is NOT designed or intended for use in the diagnosis of disease or other conditions, or in the cure, mitigation, treatment, or prevention of any condition or disease. Please consult your healthcare provider prior to making any decisions related to your health.

Symbols Used in This Manual

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<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
<th>Description</th>
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<tr>
<td>![Danger]</td>
<td>Danger</td>
<td>Not following the instructions associated with this symbol may lead to life-threatening situations and / or serious damage to the Product.</td>
</tr>
<tr>
<td>![Warning]</td>
<td>Warning</td>
<td>Not following the instructions associated with this symbol may lead to personal injury and / or serious damage to the Product.</td>
</tr>
<tr>
<td>![Caution]</td>
<td>Caution</td>
<td>Caution should be exercised with the associated information.</td>
</tr>
<tr>
<td>![Information]</td>
<td>Information</td>
<td>The information associated with symbol refers to a general remark or a reference to other documentation.</td>
</tr>
<tr>
<td>![Instruction]</td>
<td>Instruction</td>
<td>This symbol refers to one or more user instructions.</td>
</tr>
<tr>
<td>![Recycling]</td>
<td>Recycling</td>
<td>Specific parts of the Product can be re-used.</td>
</tr>
</tbody>
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## Acronyms

The following acronyms are used in this Manual:

<table>
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<th>Acronym</th>
<th>Definition</th>
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<tr>
<td>HD</td>
<td>High Definition</td>
</tr>
<tr>
<td>HDMI</td>
<td>High-Definition Multimedia Interface</td>
</tr>
<tr>
<td>IP</td>
<td>Internet Protocol</td>
</tr>
<tr>
<td>PoE</td>
<td>Power over Ethernet</td>
</tr>
<tr>
<td>PTZ</td>
<td>Pan / Tilt / Zoom</td>
</tr>
<tr>
<td>RTMP</td>
<td>Real-Time Messaging Protocol</td>
</tr>
<tr>
<td>RTSP</td>
<td>Real-Time Streaming Protocol</td>
</tr>
<tr>
<td>SKU</td>
<td>Stock Keeping Unit</td>
</tr>
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Terms of Use Avonic

Avonic supplies, among other things, cameras, audiovisual or IT systems. Avonic sets conditions on the use of its cameras, audiovisual or IT systems and the (embedded) software. These conditions are included in these user terms and conditions. Every user of Avonic cameras, audiovisual or IT systems must comply with these user terms.

IN ORDER TO USE THE AVONIC SUPPORT SERVICE, REGISTRATION WITH AVONIC AS A USER IS MANDATORY. READ HERE HOW: WWW.AVONIC.COM/REGISTER

WANT TO PARTICIPATE IN THE FURTHER DEVELOPMENT OF AVONIC CAMERAS, AUDIOVISUAL OR IT SYSTEMS? JOIN THE AVONIC PRODUCT DEVELOPMENT PROGRAMME: READ ABOUT THE BENEFITS AND CONDITIONS HERE: WWW.AVONIC.COM/REGISTER

1. Definitions
The following definitions apply to these user terms and conditions:

1.1 Avonic: the private company with limited liability, registered under the legal name Avonic B.V., registered with the Chamber of Commerce under number 63411148, which company is engaged in the production of and trade in cameras, audiovisual and IT systems;

1.2 Avonic Products and Services: All products and services provided by Avonic, the resulting provisions and the associated activities which do not originate from third parties and for which any intellectual property rights, industrial property rights and other rights are vested in Avonic;

1.3 Installer: The natural or legal person who, acting in the exercise of his profession or business, has supplied Avonic Products or Services to the User in a legitimate manner.

1.4 User: A (final) user of an Avonic Product who (I) has acquired the Avonic Product lawfully, (II) only uses the “Embedded software” of the Avonic Product to the extent reasonably necessary to use the Avonic Product in accordance with these terms of use and all applicable intellectual property laws, and (III) only uses the Avonic Product for lawful purposes in accordance with the laws and regulations applicable to him or her.

1.5 Embedded software: Computer software supplied as part of a physical (hardware) Avonic Product without which it cannot function.

1.6 Support: The provision of verbal (telephone) and written (e-mail) advice regarding the use and operation of Avonic Products and Services.

2. Registration requirement for additional services by Avonic

2.1 User must register with Avonic before User can make use of Avonic’s additional services, including the provision of remote support.

2.2 User acknowledges that, instead of Avonic, he may approach the installer with any requests for support.

2.3 Only after registration and full payment of the costs owed to Avonic, including the license fee, will Avonic provide support for Embedded Software that is lawfully and correctly installed on an Avonic Product.

3. Signing up to the Avonic Product Development Program

3.1 Avonic is committed to technological innovation. This includes the further development of the technology of cameras, audiovisual or IT systems.

3.2 Users may participate in the Avonic Product Development Program. Avonic and the User enter into a written agreement regarding the participation of the user in the Avonic Product Development Program, in which the rights and obligations of the parties, as well as the guarantees which Avonic and the pilot partner will provide to third parties, are set out in writing.

3.3 As part of the Avonic Product Development Program, it is possible that, in accordance with the General Data Protection Regulation (GDPR), a data protection impact assessment must be carried out before the Avonic Product Development Program can be carried out. If, following an investigation, it is found that the User is not a suitable candidate for the Avonic Product Development Program, for example from the results of a data protection impact assessment, and no measures can be taken to adequately address the risks to the protection and privacy of third parties, Avonic is entitled to exclude the User from the Avonic Product Development Program.

4. Right of use on embedded software

4.1 The possibility exists for some Avonic Products and Services to enrich cameras, audiovisual or IT systems from Avonic with software (modules). For example, to enable a camera to track motion. This software is Embedded Software. Without the Avonic Product hardware (the camera), the Embedded Software does not function.

4.2 Avonic grants the User of Avonic Products the non-exclusive right to use Embedded Software which, together with the hardware on which the Embedded Software can be installed, is made available on a “per Product” basis. An activation code shall be supplied per Avonic Product (hardware) which makes it possible to install the Embedded Software on the Avonic Product. The Embedded Software may only be used on that specific Avonic Product and Service and Avonic hardware; the Embedded Software may not be used on other hardware.

4.3 The software may only be used in conjunction with other goods, products or services if it is intended by Avonic to be used in conjunction with them.

4.4 The right of use is always granted for the payment period agreed in writing with Avonic or a third party supplying Products and Services and the Embedded Software for Avonic. This may be on a monthly or annual basis. The licence period is always tacitly extended by the same payment period. Termination occurs by means of a registered letter which must be received by Avonic no later than 2 months before the renewal becomes effective.

4.5 The User’s right of use is limited to the Embedded Software installed or to be installed on the Avonic Products and Services (hardware) by means of the activation code for own use only. The right of use is limited to the Avonic Product (hardware) on which the Embedded Software was first installed, and the number of users is always limited to 1 (one) per device. The right of use for software can only be transferred together with the transfer of the Avonic Product on which the Embedded Software is installed.
4.6 The right of use for software is limited to the Object Code. Rights to the underlying software and Source Code itself are not granted.

4.7 The right of use shall take effect after payment for the license has been made. Avonic reserves the right to suspend the right of use if payment is not made or these terms and conditions are not met.

4.8 No rights with regard to maintenance can be derived from the granting of a right of use for any period whatsoever.

4.9 The right of use ends at the end of a license period, if this license period is not extended. Only if the Avonic Product (hardware) on which the Embedded software is installed is defective and is replaced under the terms of the Avonic warranty, shall the right of use on the defective Product be converted to the Product which replaces the defective Product. Avonic is under no obligation to refund licence fees, even if it is a case of an Avonic Product which has reached the end of its lifecycle within the licence period.

4.10 The scope of the right to use software of which the intellectual property rights lie (partly) with third parties is determined by the general terms and conditions of those third parties. In the event of any conflict between the provisions of the third parties’ general terms and conditions and these Terms of Use, the provisions of these Terms of Use shall take precedence over the third parties’ general terms and conditions.

4.11 It is prohibited to copy, duplicate or modify the Embedded software or Products (hardware) in any way whatsoever yourself and/or with the help of third parties. Any party other than Avonic is prohibited from adding functionalities to the installed Embedded software without prior written consent from Avonic.

4.12 Reverse engineering, decompilation or any other method of adapting the software to a human-readable form, or exposing or modifying the hardware, is prohibited for anyone other than Avonic itself, unless explicitly permitted by mandatory law.

5. Maintenance and support for (Embedded) software

5.1 Embedded Software maintenance comprises the provision, at Avonic’s discretion, of updates for the licensed Avonic Products and Services or Services which contain a qualitative (e.g., fault repair) or functional improvement to the Avonic Product provided, possibly including documentation thereof. Avonic is not obliged to actively keep the Installer and/or the User informed of any updates or other improvements.

5.2 If maintenance involves a functional improvement, Avonic is entitled to charge additional costs to compensate for this functional improvement.

5.3 Avonic is entitled to refuse to provide maintenance if the Avonic Products and Services, such as cameras, audio-visual or IT systems, or the physical or digital environments in which the aforementioned Avonic Products and Services operate have been modified in any way or form by the Installer or the User since the original installation.

5.4 If the Installer and/or the User refuses to install new updates offered by Avonic, Avonic reserves the right to no longer provide maintenance and support, without refunding any monies paid.

5.5 Avonic will only provide Support for the most recent updates of the software. Avonic is entitled, at its discretion, to provide Support for older versions, releases, etc., of software installed on delivered Products.

5.6 The Installer or User must test the Avonic Product with Embedded Software after each update to ensure that it functions properly and that the update has been carried out correctly. Avonic is not able to check whether an update for each Avonic Product has been carried out correctly.

6. Maintenance and support - live monitoring

6.1 In order to provide Support, Avonic may, at the User’s request, remotely monitor cameras, audiovisual or IT systems and watch and/or listen to the images and the sound. No recordings will be made or data saved during the live monitoring.

6.2 In the context of protecting personal data and guaranteeing the right to privacy, User must ensure, during Support, that Avonic has as little access as possible to data containing personal data. This means, among other things, that:

a) User must ensure that as few people as possible can be seen or heard through the camera and that no personal data or sensitive information can be read during the period that Avonic is watching live.

b) The User must ensure that all persons who are on screen during the performance of maintenance or Support, whereby Avonic is watching live, are informed that Avonic is watching.

6.3 Avonic is entitled to interrupt, refuse or postpone the provision of maintenance and Support using live monitoring. If, in the opinion of Avonic, there are too many people recognisable on the screen, if Avonic has reason to doubt that the people on the screen have been adequately informed, or for any other reason.

6.4 The User is obliged, at the end of the Support during which live remote viewing took place, to take all necessary actions so that Avonic is no longer able to view real-time images and sound from the User’s cameras, audiovisual or IT systems. This must be done by the User by following the steps described in the manual of the Avonic Product.

7. Privacy & Data protection

7.1 User shall comply with all laws and regulations applicable to him/her when using Avonic Products or Services, including the General Data Protection Regulation (GDPR) and the Dutch General Data Protection Act (Uitvoeringswet Algemene Verordening Gegevensbescherming (UAVG)).

7.2 User shall also comply with the Dutch Penal Code (Wetboek van Strafrecht, Sr), the Dutch Code of Criminal Procedure (Wetboek van Straf procedure, Sv) and any other criminal or procedural laws and regulations and shall not act in conflict with these laws and regulations when using Avonic Products or Services.

7.3 User shall position Avonic products in such a way that no, or as little, personal data is processed (for example, by placing the cameras high up).

7.4 User shall only process personal data by using Avonic products if User can rely on a lawful basis, or an exception to the ban on processing special personal data under the General Data Protection Regulation (GDPR).

7.5 User shall only use cameras or comparable Avonic Products for systematic camera surveillance if User serves a legitimate objective which cannot be achieved in a less drastic manner. The User will not make any sound recordings and will always indicate clearly that camera surveillance is taking place, for example by placing a warning sign.
7.6 User shall not install cameras or comparable Avonic Products in toilets or changing rooms.

7.7 User shall not install cameras or similar Avonic products in living areas.

7.8 The User shall observe a reasonable retention period for camera images.

7.9 Avonic is not liable for any claims by third parties relating to violation of the GDPR or infringement of privacy. Should it transpire, on the basis of a court decision, that Avonic is still fully or partially liable for claims by third parties in connection with the violation of the GDPR or infringement of privacy, Avonic shall be entitled to recover the amount of the damage and any other associated costs from the User.

7.10 User shall carry out a data protection impact assessment (DPIA) if User intends to carry out any data processing using Avonic Products that is likely to pose a high risk to the privacy of the individuals whose data User processes. User shall identify the privacy risks of a data processing operation in advance and take all available measures to mitigate the risks. Avonic only makes cameras, audio-visual or IT systems available and is in no way responsible for the use of Avonic Products and Services and the Embedded software, nor for assessing the risks to the privacy rights of data subjects in the event of the (intended) use of Avonic Products by User.

7.11 User acknowledges that Avonic Products and Services, whether or not in combination with Embedded Software, are not suitable for use within every network, and that use is not always secure without taking appropriate measures. Avonic recommends that Avonic Products and Services only be used within a closed network, or within a properly secured network. Avonic is not responsible for the network and its security. Avonic is not responsible for the security of the User's network, as Avonic cannot influence this.

8. Controls

8.1 Avonic is entitled to incorporate technical limitations and control mechanisms into Avonic Products and Services in order to prevent abuses and/or to check that the User only uses them in accordance with these Terms of Use.

8.2 Avonic is entitled, either itself or through a third party, announced or unannounced, to carry out checks at locations where the Avonic Products and Services are used, if in the opinion of Avonic there is a serious reason to do so, for as long as a User uses the Avonic Products and Services. User shall ensure that all cooperation and access is provided for this purpose.

8.3 Should the User refuse to cooperate or grant access to Avonic, Avonic is entitled to terminate all agreements with the User, including the granting of the user license, with immediate effect and without being liable for any further compensation. In this case, the User is no longer entitled to use the software of the Avonic Products and Services.

9. Liability

9.1 Avonic is not liable for any breach of laws and regulations involving the use of Avonic Products and/or Services by the Installer or User. Avonic cannot be held liable for the use of its Products by Users and/or third parties. The User hereby indemnifies Avonic in the broadest sense of the word. It is up to the User to comply with all laws and regulations applicable to him.

9.2 Avonic is not liable for damage of any nature whatsoever, unless the liability of Avonic follows from mandatory legal provisions. In the latter case, Avonic shall recover the damage from the User, the Installer or third party who caused the damage through their actions or omissions.

9.3 In all cases where Avonic is required to pay compensation, the total liability of Avonic to the User, under any theory or grounds whatsoever, shall always be limited, insofar as legally permissible, to the net invoice value of the Product, or to that proportion of the net invoice value to which a claim for compensation is directly or indirectly linked. The total compensation owed by Avonic shall under no circumstances exceed € 100,000 per event, whereby a series of related events shall be regarded as a single event.

9.4 Liability for any indirect or consequential damage, including but not limited to loss of profit or loss resulting from late delivery or stagnation and damage resulting from claims by third parties, is expressly excluded.

9.5 All claims against Avonic, except those acknowledged by Avonic, lapse by the mere lapse of 12 months after the claim arose.

9.6 In the event of deliberate intent, gross negligence or deliberate recklessness on the part of Avonic, the limitations on liability in this article do not apply.

10. Code of conduct

10.1 User must use the Avonic Products and Services and/or other facilities offered in a responsible manner. It is prohibited to use the Avonic Products and Services and/or other facilities offered in any way which:

a) damage to the systems of Avonic and/or third parties;

b) may cause or cause disturbances in use.

10.2 It is prohibited to use Avonic Products and Services and/or other facilities offered for illegal practices. This includes, among others, the following actions and behaviour:

a) spreading and/or forwarding (child) pornography;

b) causing a danger to the functioning of computer systems or networks of Avonic or third parties;

c) sexual harassment, discrimination and/or any other form of harassment;

d) distributing or in any other way making available to third parties obscene, insulting and harassing material and/or other material of a similar nature;

h) making threats;

i) storing and distributing viruses, worms and/or other destructive activities;

j) hacking into the accounts, systems and/or networks of third parties and/or Avonic without permission and/or performing and/or refraining from performing any other act which makes hacking possible.
10.3 Avonic reserves the right to put the Avonic Products and Services and/or the other facilities offered out of use by a User, if, in Avonic’s opinion, if required by law or by a court ruling and/or if a third party points out to Avonic and/or suspects that by means of the Avonic Products and Services, the rights of a third party are infringed, or if the obligations arising from these Terms of Use are not complied with, or not complied with properly or in full.

10.4 Avonic shall under no circumstances be liable for damage of any nature whatsoever suffered by User and/or third parties as a result of the measures taken on the basis of the previous paragraph. The User may not invoke a right of suspension.

10.5 Should the seriousness of the actions and/or failure to act by the User justify this, and/or should these continue despite the measures taken by and/or on behalf of Avonic, Avonic and/or the Installer shall have the right to terminate all agreements with the User, without Avonic or the Installer being obliged to pay any compensation in this regard or to refund any monies already paid.

11. Amendment of Terms of Use

11.1 Dutch law applies to all legal relationships of Avonic.

11.2 Avonic is entitled to amend or supplement these Terms of Use.

11.3 The most recent version of these user terms and conditions can be consulted on the website: www.avonic.com/terms-conditions.

12. Contact

To contact Avonic:
Tel: +31 15 711 2712
E-mail: info@avonic.com
Mail: Exportweg 11a, 2645 ED, Delfgauw, The Netherlands

Registration for the Avonic Support Service:
www.avonic.com/register

Sign up for the Avonic Product Development Program:
www.avonic.com/register
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INTRODUCTION

Purpose of this Manual
This Manual describes the safety precautions and the instructions for safe installation and operation of the Avonic CamDirector® Teacher Tracker Software. Note that the Avonic CamDirector® Teacher Tracker software is part of the CamDirector® (system): the software, CD500 and cameras. See below.

What you need to operate the CamDirector® Teacher Tracker

CAUTION
Take note that you need the following products to use the CamDirector® Teacher Tracker Software:
1. 1x AV-CD500 (separately sold)
2. 1x AV-CD-TRAC1 CamDirector® Teacher Tracker software license
3. 2x AV-CM70 series cameras (separately sold)
4. 1x CAT 6x Ethernet cable (third party)
5. 2x PoE CAT 6x cables (third party)

Target Audience
This Manual is developed for installation technicians who install and operate the Product at client sites, and for IT professionals who are responsible for operating the Product.

Document Structure
The Manual is subdivided into the following Chapters:
1. Introduction
2. Product Overview
3. Mounting and Installation
4. Operation
5. Troubleshooting
PRODUCT OVERVIEW

CamDirector® Teacher Tracker Software

Avonic’s CamDirector® Teacher Tracker is a unique tracking solution that creates automatic multi camera video registrations of lectures. It can automatically find the teacher in a room with students and provides elegant close-ups of the teacher, even in large lecture halls and auditoriums. The live video output automatically switches between overview shots of the classroom and close-ups of the teacher. With the CamDirector® Teacher Tracker Software Avonic sets the new standard for automated lecture recordings.

Features

**From small classrooms to large auditoria**
The CamDirector® Teacher Tracker supports perfect tracking of a presenter even in the largest lecture halls and auditoriums.

**Hassle-free lectures**
The system runs automatically when a lecture starts without the need to wear distracting equipment. Let teachers focus on teaching instead of technology.

**Consistent and accurate tracking**
By harnessing the strength of the two-camera approach, the CamDirector® 99% of the time provides an accurate and consistent tracking solution.

**Track and Switch TV-like experience**
CamDirector® Teacher Tracker’s close-up camera follows the teacher’s movement in a calm and natural way, while the overview camera provides shots of the room to give the viewers the experience of being present.

**Privacy Guaranteed**
The CamDirector® Teacher Tracker is built around privacy. All image processing is done locally without the need to be connected to the internet. We give you the tools to set privacy settings according to your own standards.

**An ever-evolving AI solution**
Avonic’s patented machine learning algorithms let the teacher tracker improve over time by learning from every lecture it records.
MOUNTING AND INSTALLATION

To use the CamDirector® Teacher Tracker software you need the CD500 and two of the SAME CM70 series camera models. These camera’s can be mounted to a wall or tripod using a MT220 mount (see the MT220 mount for the manual.) This chapter describes how to connect all the components to the CD500. These steps are subdivided into the following groups, each of which is described in a separate section:

1. Connecting the Components to the CD500 and the cameras

⚠️ WARNING

Take the following precautions to prevent the CD500 from falling down which may cause injuries:

- Set up the CD500 and its cameras on a hard, stable surface, or mount it to a wall or ceiling.
- ONLY use an Avonic mount for mounting to a wall, or tripod.
- Ensure the mounting construction is capable of supporting four times the weight of the cameras and/or the Product. (See ‘General Specifications > Weight product’ in the CD500 and/or CM70 series Datasheet for the exact weight.)
- Use a safety loop or drop protection that prevents the CD500 and its cameras from falling if the mounting construction fails.
- During mounting and installation, NEVER install the CD500 and its cameras above a person.
- Check the installation at least once a year. An improper mounting could cause the unit to fall off, resulting in personal injury.

Connecting the components to the CD500

NOTICE

Execute the following steps to connect the components to the CD500:

1. Connect all provided components to the ports at the back of the CD500.

   1. RCA port (Audio Line IN) (for future use)
   2. RCA port (Audio Line OUT) (for future use)
   3. USB3.0 port
   4. HDMI 2.0 a/b port
   5. RS232 port (for future use)
   6. RS485 port (for future use)
   7. GPIO Harting, har-flexicon port (for future use)
   8. PSU port (to connect the provided power adapter)

2. Connect both CM70 series* cameras using a CAT6x ethernet cable (NOT provided in the package contents) to the ethernet ports at the front of the CD500. The figure below shows how to connect all components to the back and front of the CD500. For the video output you need to connect also a HDMI cable to the CD500 and your monitor. For audio you need an USB cable plus USB extenders. Audio will NOT work using the RCA ports or the Balanced Audio Ports on the CM70 series cameras!

⚠️ CAUTION

* Note that the CamDirector system works ONLY with two of the same camera models (two CM70-IP, CM70-NDI, two CM71, or two CM73 cameras!)

After connecting the provided power adapter and the CAT 6 Ethernet cable, the CD500 will start automatically. The CD500 is now ready for set up.
The CamDirector® Teacher Tracker works with two Avonic CM70 series* cameras: an overview and a follow camera. The software is trained to use the follow camera to pan, tilt, zoom in and out to follow the speaker. The overview camera is used to give you a stationary picture of the entire stage. No internet connection is required. Everything runs locally on the CD500. This chapter will explain how to use the CamDirector® Teacher Tracker. In this chapter, the single speaker is called the teacher. Read also the AV-CM70 series manual to make yourself familiar with the features of this camera and the Basic CamDirector tips article on the website.

* Note that the CamDirector® works ONLY with two of the same camera models (two CM70-IP, CM70-NDI, two CM71, or two CM73 cameras)! Because of the different field of views it will NOT work using two different models.

What you can see in the WebInterface depends on the licenses activated on the CD500. See the Setting > Status page for the activated licenses on your CD500 and the Avonic website for the available licenses.

First time usage

1. Install the Cameras
   - By first time usage of the cameras: open the box of the CM70 series cameras (see connecting the components) and follow the Quick Guide. After that follow instructions in this manual.
   - Install the cameras to the MT220 mount using the supplied screws. Download the MT220 manual.

2. Connect the CD500
   - Connect the two cameras using CAT6a cables to the camera ports on the CD500. See Mounting and Installation.
   - Connect your computer/local network to the CD500 using an ethernet cable, configure your ethernet adapter to network segment 192.168.5.xxx
   - Connect also a HDMI cable for video output (there is no video output over ethernet). Use the USB port and USB extenders to use audio (RCA ports and Balanced Audio ports on the cameras will NOT work!)

3. Configure the cameras
   - Turn on the first camera and configure its network settings according to your local network. Do the same for the other camera. See also the Quick Guide of the CM70 series cameras.
   - Set up both camera’s exposure and white balance to match the circumstances in the room.
   - Take note of the two IP addresses of the cameras, you will need them during installation of the Teacher Tracker.

4. Configure the CD500
   - Open a browser. Fill in the default IP address: 192.168.5.50. You can use Google Chrome or Microsoft Edge. The WebInterface will not work correctly when Firefox is used. Login using the following credentials: Username: admin Password: admin
   - Navigate to Settings > System and setup the network settings. Add the IP addresses of both cameras.
   - Check if the Teacher Tracker License is activated (under Licenses), if not contact Avonic.
   - Click Save and Reboot, this will take a couple of minutes. Upon reboot the CD500 will display its IP address on the HDMI output for one minute.
   - Go to Settings > Status. Check if there is a new firmware update available. If so, update the Teacher Tracker.

5. Calibration
   To use the Teacher Tracker, you need to calibrate the software. See Calibration.
Teacher Tracker

**CAUTION**
You can see this page only with the module Teacher Tracker activated. For available licenses check the Settings > Status page and the Avonic website.

The Teacher Tracker > Info page is the starting page of the WebInterface.

On this page you can see:
1. A vertical blue bar at the left side of your screen where you can navigate to different pages.
2. An output preview of camera 1 (overview camera) from the two cameras connected. The green camera bars below the output preview will turn from green into orange if they are not connected. Note that you cannot click on them. The only function they have is to show the connection status of the cameras.

   - For an automatic detection of a person before the camera, you need to pull the Teacher Tracker toggle button at the top of the output preview (3) from left to right, making it green.

---

**Teacher Tracker > Info**
Teacher Tracker enables creating fully automated lecture streams.

1. Click on Teacher Tracker > Calibration in the blue bar. You will see the picture below:

For the Teacher Tracker to be able to create high quality lecture registrations, it is crucial to calibrate the software in order to create high quality lecture registrations. This can be done by placing **one person** in the overview area (on stage, room etc). This person can be anyone: teacher, technician, student etc.

   1. **Calibration**

   - For an automatic detection of a person before the camera, you need to pull the Teacher Tracker toggle button at the top of the output preview (3) from left to right, making it green.

---

**Teacher Tracker > Calibration**

For the CamDirector’s Teacher Tracker to function properly, it is crucial to calibrate the software in order to create high quality lecture registrations. This can be done by placing **one person** in the overview area (on stage, room etc). This person can be anyone: teacher, technician, student etc.

   1. Click on Teacher Tracker > Calibration in the blue bar. You will see the picture below:

   - For the Teacher Tracker to be able to create high quality lecture registrations, it is crucial to configure the cameras accordingly.

   - Click on Start configuration and you will be guided through the configuration process.

   **Calibration**

   - Any changes made to the camera’s position, pan, tilt, zoom, and/or light conditions require re-calibration of the Teacher Tracker!

   - Calibration can be done with one person, but it is recommend to calibrate the software with two persons: one person on stage, or in the room and one behind the computer to give instructions where the person on stage, or in the room should stand.

   - Do not forget to turn ON the cameras before starting the calibration process.
See also CamDirector®: How to calibrate the Teacher Tracker software on the website. Follow instructions below to calibrate a person before the camera:

1. Click **Start Configuration**.
   - Define your stage. Determine the positions where the teacher could stand on stage or in the room and configure the Pan, Tilt and Zoom levels of the overview camera until all these positions are in the picture (the software will automatically detect the zoom level for the follow camera during calibration). Make also sure that the teacher is in the picture with his or her face and upper body.
   - Make sure that the person to be calibrated is alone in front of the camera. With two or more persons (with their face) before the camera the software is not able to find a detection point and will wait until it has found one.

2. Click **Start Calibration**. At the bottom of the next page a bar appears that is slowly turning full. The number of calibration points will increase during calibration.

3. Choose a position in the room. Wait until the cameras are ready. The camera will blink 4 times red when the calibration is in progress. If a calibration point is found, the camera will blink green.

4. When both the cameras are blinking green, the person to be calibrated can move to another position in the room or on stage. Use the full width of the room or the stage and take at least 5 calibration points in a sitting position on a chair. Repeat this until all calibration points (20) are found and completed.

5. Press the **abort** button if you want to abort the calibration.
6. The camera tally lights will be solid green if the calibration is successful. The software will automatically return to the configuration page.

7. Navigate to Teacher Tracker > Audience and set the audience exclusion zone. After calibration the Teacher Tracker toggle button is automatically set to ON. You can check this at the info page. The Software is now ready to follow the teacher. Note that you cannot control the PTZ functionality of the camera or see a video output over IP in the WebInterface of the camera when the Teacher Tracker toggle button is set to ON.

**NOTICE**
You can change camera positions during calibration. It is also possible to switch the cameras by switching the IP Addresses at Settings > System. If you do this, **re-calibration is needed!**

<table>
<thead>
<tr>
<th>Tally light status</th>
<th>Camera tally light</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid red</td>
<td><img src="image" alt="Solid Red Tally Light" /></td>
<td>Cannot find calibration point</td>
</tr>
<tr>
<td>4 times blinking red</td>
<td><img src="image" alt="Blinking Red Tally Light" /></td>
<td>Calibration point in progress</td>
</tr>
<tr>
<td>Blinking green</td>
<td><img src="image" alt="Blinking Green Tally Light" /></td>
<td>Calibration point found</td>
</tr>
<tr>
<td>Solid green</td>
<td><img src="image" alt="Solid Green Tally Light" /></td>
<td>Calibration successful</td>
</tr>
</tbody>
</table>

**Teacher Tracker > Audience**
This page is to exclude audience: like students and other people on the foreground. This is needed for the software to follow only the teacher.

**NOTICE**
Click on the blue bar (2) at the bottom of the preview. You can drag the audience exclusion zone up or down to exclude the people you want to exclude. See the picture below:

(setting description)

**Setting**
Drag the button to set the height of the audience exclusion zone. Make sure that the coloured region does **not** include a zone where the speaker’s face and upper body can be found.
Settings
On this page it is possible to change some CamDirector® Teacher Tracker settings such as Camera, Audio and Network settings. It is also possible to change account settings (username and password).

Settings > Status
The Status page shows:
• The network addresses (IP, Netmask, Gateway, MAC Address)
• Calibration status and date
• Camera status and addresses (Overview and Follow Camera)
• A button to reset to Factory Settings
• The Licenses available
• A button to check for licenses, download logs and check/ update Firmware. Note that re-calibration is not needed after updating the Teacher Tracker software to a new firmware version.

An internet connection is required to update the Teacher Tracker software. You can go offline when the update is completed. See also CamDirector® Firmware Update on the website.

Settings > Status
This page shows the status of the CamDirector system and related products.

CamDirector

Network
IP Address  172.26.40.222
Netmask  255.255.254.0
Gateway  172.26.40.1

Calibration
Status  Ready ✓
Date  2022-04-11 15:05

Camera 1 (Overview)
IP Address  172.26.40.220
MAC Address  98:14:d2:21:10:3F
Status  Connected ✓

Camera 2 (Follow)
IP Address  172.26.40.216
MAC Address  98:14:d2:21:31:70
Status  Connected ✓

Reset to Factory Settings

Licenses

Module  Available  From - To
Manual Control™  Yes ✓  Jan 2021 - Jan 2099
Teacher Tracker™  Yes ✓  Jan 2021 - Jan 2099

Check for license

Logs

Download Logs

Firmware

Check for updates  Update Now
Settings > System

The System page can be used to change Camera, Audio and Network Settings.

Cameras, Streaming and Network

Under Settings > System you can configure the cameras IP addresses and Network settings.

Settings > System

This is where the CamDirector system settings can be changed.

Cameras

<table>
<thead>
<tr>
<th>Overview Camera</th>
<th>Follow Camera</th>
</tr>
</thead>
</table>

Network

- Automatic Configuration (DHCP)
- Remote Support

<table>
<thead>
<tr>
<th>System IP</th>
<th>Netmask</th>
<th>Gateway</th>
</tr>
</thead>
<tbody>
<tr>
<td>172.26.40.211</td>
<td>255.255.254.0</td>
<td>172.26.40.1</td>
</tr>
</tbody>
</table>

Save Changes

Reboot

1. Cameras
   - Camera 1 and 2 IP
     - Cameras IP address. This should be the cameras IP address of two of the same CM70 camera models (see Operation) in your local network! Otherwise it will NOT work!

2. Network
   - Automatic Configuration
   - Remote Support
   - System IP
   - Netmask
   - Gateway
     - Enables a DHCP.
     - Enables remote support access from our support team.
     - IP address of the CD500
     - Netmask address of the CD500
     - Gateway address of the CD500

Save and reboot the CamDirector® for the changes to take effect.

Settings > Account

Here you can change account settings like Username and Password.

New Username

New Password

Save
TROUBLESHOOTING

General

1. Turn the CD500 and the CM70 series cameras off and on again and check if the problem persists.
2. If the problem persists after putting the CD500 and the camera off and on again, restore to the factory default.

Power Issues

1. Check the CD500 power LED is OFF:
   1. Check the net power.
   2. Check the power supply.

WebInterface

1. Use an incognito window in your browser, sometimes cache issues arise when using multiple devices that have the same default IP address.
2. Reset to factory default.
3. See also CamDirector®: Why Teacher Tracker is not switching on the website, if the Teacher Tracker software will not switch to a follow or an overview shot.

No Image / no preview of the image in the WebInterface

1. Check the power of the camera and monitor.
2. Check if the cameras are connected to the same subnet as the CD500.
3. Check the quality and length of the CAT 6a cables of the CD500.
4. Check if the video specifications of your monitor matches the specifications of the cameras.

Tracking Issues

1. Check if the cameras that are connected to the CD500 are two of the SAME CM70 series camera models (two CM70-IP, two CM70-NDI, two CM71, or two CM73 cameras).
2. Check the configuration of the cameras: exposure and white balance to match the light conditions in the room and changes to the pan, tilt and zoom levels of the cameras.
3. Check if the IP addresses of the cameras are switched. If so, re-calibrate the Teacher Tracker software.
4. Check the Teacher Tracker toggle button in the WebInterface. See Teacher Tracker on page 14.
5. Check if the audience exclusion zone is not above the upper body and or face of the teacher. If it is, the teacher will also be excluded and cannot be detected by the Teacher Tracker.

It is recommend not to wear light clothes against a light background or dark clothes against a dark background.
LIST OF SUPPORT ARTICLES

This list provides links to different support articles on the Avonic website to help you to understand the CamDirector®.

**Settings:**
- CamDirector®: Audience exclusion
- CamDirector®: Calibration tally light status
- CamDirector®: How to calibrate the Teacher Tracker software
- Basic CamDirector® tips

**Maintenance:**
- CamDirector®: Firmware releases
- CamDirector®: Firmware update instructions

**Troubleshooting:**
- CamDirector®: How to reset the Teacher Tracker software?
- CamDirector®: Why Teacher Tracker is not switching?

**FAQ (Frequently Asked Questions):**
- CamDirector®: Are PIP, logo or name overlay supported?
- Can the CD500 be used for other purposes?
- Can the CD500 controller be set to DHCP?
- CamDirector®: Can the cameras be controlled manually?
- CamDirector®: Can the cameras be approached individually?
- CamDirector®: Different camera support?
- CamDirector®: Is a direct connection to the cameras mandatory?
- CamDirector®: Is the tracking speed and zoom adjustable?
- CamDirector®: Teacher Tracker software and AI Processing Unit
- CamDirector®: Which video format?
- CamDirector®: Will NDI be supported?
- CamDirector® License FAQ

**Quick Start Guide**
- CamDirector® Quick Start Guide
- CamDirector®: Teacher Tracker web GUI

**Control**
- CamDirector® Control Solutions
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