

# USER MANUAL



## Avonic CD500 AV-CD500

# DISCLAIMER, CONTACT AND MARKINGS

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## Markings

The Product has Markings. The labels are placed at the bottom of the Product and on the packaging. See the respective figures below:

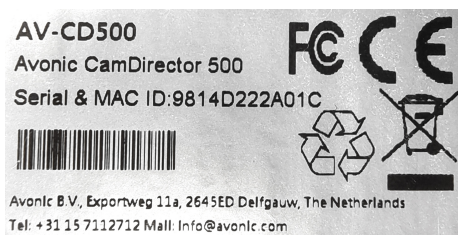




Figure 1: Markings (Product)



Figure 2: Markings (Packaging)

# EC DECLARATION OF CONFORMITY

Table 1: EC Declaration of Conformity

 AVONIC	
<b>EC DECLARATION OF CONFORMITY</b>	
1. Models No:	AV-CD500
2. Brand Name:	Avonic
3. Product Name:	CamDirector® AI Processing Unit
4. Manufacturer:	Avonic Exportweg 11a 2645ED Delfgauw The Netherlands
3. This declaration of conformity is issued under the sole responsibility of the manufacturer	
4. The object of the declaration described in point 1 is in conformity with the EMC2014/30/EU	
5. Standards	EN 55032: 2015/AC: 2016 Class A EN 61000-3-2: 2014 EN 61000-3-3: 2013 EN 50130-4: 2011+A1: 2014
6. Signed for and on behalf of Avonic:	
Delfgauw, 20th of May, 2021	
	
Martijn van Bodegom, Product Manager	

# 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



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






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 should ONLY be used indoors.
- 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.

### Important Precautions

	This Product is NOT intended for use where failure of the device could lead to death, personal injury, or severe environmental damage.
	Be sure that you have COMPLETELY READ and UNDERSTOOD ALL information in this Manual before unpacking, installing and using this Product. Keep the Manual in a safe place for future reference or download it from <a href="http://www.avonic.com">www.avonic.com</a> .
	Failure to follow the SAFETY NOTES as described in this chapter could result in fire, electric shock, injury, or damage to the Product or other property.
	Power the Product ONLY with the included cable and power adapter. Other adapters may not meet applicable safety standards, and could pose a risk of death or injury when connected.

## Symbols Used in This Manual

Symbol	Meaning	Description
	Danger	Not following the instructions associated with this symbol may lead to personal injury and / or serious damage to the Product.
	Electrical Shock	Not following the instructions associated with this symbol may lead to life-threatening situations and / or serious damage to the Product.
	Important	The information associated with this symbol requires special attention.

Symbol	Meaning	Description
	Information	The information associated with symbol refers to a general remark or a reference to other documentation.
	Instruction	This symbol refers to one or more user instructions.
	Recycling	Specific parts of the Product can be re-used.

## Acronyms

The following acronyms are used in this Manual:

<b>HD</b>	High Definition
<b>HDMI</b>	High-Definition Multimedia Interface
<b>IP</b>	Internet Protocol
<b>PoE</b>	Power over Ethernet
<b>PTZ</b>	Pan / Tilt / Zoom
<b>SKU</b>	Stock Keeping Unit

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# Introduction

## Purpose of This Manual

The purpose of this manual is to provide safety instructions and guidelines for the proper unpacking, installation, operation, maintenance, and disposal of the Avonic CD500. The Avonic CD500 is a component of the CamDirector® system, which includes a CD500 hardware unit, two CM70 series cameras, and Teacher Tracker software (each available separately).



In this Manual, the Avonic CD500 is referred to as the 'Product'.

## Target Audience

This Manual is developed for installation technicians who install 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. Safety
3. Product Overview
4. Unpacking
5. Mounting and Installation
6. Maintenance
7. Transport and Storage
8. Disposal and Recycling
9. Troubleshooting

# SAFETY INSTRUCTIONS

This chapter contains important safety information regarding the unpacking, installation and use of the CD500.

## Important Precautions

	This Product is NOT intended for use where failure of the device could lead to death, personal injury, or severe environmental damage.
	Be sure that you have COMPLETELY READ and UNDERSTOOD ALL information in this Manual before unpacking, installing and using this Product. Keep the Manual in a safe place for future reference or download it from <a href="http://www.avonic.com">www.avonic.com</a> .
	Failure to follow the SAFETY NOTES as described in this chapter could result in fire, electric shock, injury, or damage to the Product or other property.
	Power the Product ONLY with the included cable and power adapter. Other adapters may not meet applicable safety standards, and could pose a risk of death or injury when connected.

## Intended Use



See section [Intended Use and Non-Intended Use](#) on page iv for details.

## Handling



To prevent the risk of injury, take the following precautions when handling the Product:

- Handle the Product with care. It is made of metal, glass, and plastic and has sensitive electronic components inside.
- The Product can be damaged if dropped, burned, punctured or crushed, or if it comes into contact with liquid.
- Do not pick up and move the Product unit while a tripod is attached. The fitting may break under the weight of the tripod, which may result in injury.
- If you suspect any damage to the Product, discontinue its use, as it may cause overheating or injury.

## Mounting



To prevent the Product from falling down which may cause injuries:

- Set up the Product on a hard, stable surface or mount it to a wall.
- ONLY use an Avonic mount for mounting to a wall.
- Ensure the mounting construction is capable of supporting four times the weight of the Product. (See 'General Specifications > Weight product' in the Product Datasheet for the exact weight.)
- Use a safety loop or drop protection that prevents the Product from falling if the mounting construction fails.
- During installation, NEVER install a the Product 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.



## Ventilation



To prevent the risk of life-threatening injury or damage to the Product or other property, caused by electric shock or fire hazard due to overheating:

- Maintain adequate ventilation by NOT installing or placing the Product unit in a bookcase, built-in cabinet or any other confined space.
- Ensure that curtains or any other material does NOT obstruct the ventilation.

## Repair



Take the following precautions if the Product should be repaired:

- Don't open the Product and don't attempt to repair it yourself. Disassembling the Product may damage it or may cause injury to you.
- If this Product is damaged, malfunctioning, or if it comes into contact with liquid, contact Avonic or an Avonic Authorized Service Provider.
- Repairs by service providers other than Avonic or an Avonic Authorized Service Provider may not involve the use of Avonic genuine parts and may affect the safety and functionality of the device. You can find more information about repairs and service at [www.avonic.com](http://www.avonic.com).

## Power and Adapter



To prevent the risk of life-threatening injury or damage to the Product or other property, caused by electric shock or fire hazard:

- Power the Product ONLY with the included cable and power adapter. Other adapters may not meet the applicable safety standards. They could pose a risk of death or injury when connected.
- Do NOT attempt to feed more cameras using (only) the Product's power adapter beyond what is instructed in the applicable user manuals as this could cause functionality issues, damage and/or overheating.
- Do NOT use damaged cables.
- Do NOT power the Product in a moist / wet environment.
- Before you power the Product, ensure the cable is fully inserted into the power adapter.
- Plug the power adapter directly into a power outlet.
- Do NOT use the power adapter at a moist / wet location.
- Do NOT connector disconnect the power adapter with wet hands.
- Keep the Product, cable, and power adapter in a dry and well-ventilated area when in use.
- Stop using the power adapter and any cables if any of the following conditions exist:
  - The power adapter plug or prongs are damaged.
  - The cable becomes frayed or otherwise damaged.
  - The power adapter is exposed to excessive moisture, or liquid is spilled into it.
  - The power adapter has been dropped, and its enclosure is damaged.

## Atmospheric Conditions



To prevent the risk of injury or damage to the Product or other property caused by a potentially explosive atmosphere:

- Do NOT use the Product in an area with a potentially explosive atmosphere, such as areas where the air contains high levels of flammable chemicals, vapors, or particles (such as grain, dust, or metal powders), may be hazardous.
- Exposing the Product to environments having high concentrations of industrial chemicals, including near evaporating liquified gasses such as helium, may damage or impair the Product functionality.
- Obey all signs and instructions.

# PRODUCT OVERVIEW

## AI lecture recording processing unit

Avonic's CD500 is an AI processing unit that operates as a continuously evolving video platform for Avonic's Pro-AV solutions. It can process, analyze and transmit video generated by the two PTZ cameras it controls. It provides a steady environment for the one-of-a-kind [CamDirector® Teacher Tracker Software](#) that uses locally run machine learning algorithms to offer smart lecture video recording. As a continuously evolving video platform it allows for future high-tech modules to be added. Over-the-air updates and support allow new functionality to be added overnight. Its ease of operation takes away expensive human resources needed to create high-level and engaging content for the audience. With the CD500 as part of the complete lecture recording solution, Avonic sets the new standard in teacher tracking technology.



## Features

- Process, analyze and transmit video of two PTZ camera's it controls.
- Processes signals of up to 8 cameras
- Analyzes the video input using state of the art AI-algorithms.
- Transmits the video output over IP and/or HDMI.



Processing signals of more than two PTZ cameras and transmitting video output over IP is only possible when multiple software modules are not operating simultaneously. Read the manuals of the applicable [software modules](#) for the features it actually has.

# UNPACKING

This describes the contents of a complete Product package, and instructions for safe unpacking and (if necessary) Product return.

It is subdivided into the following sections:

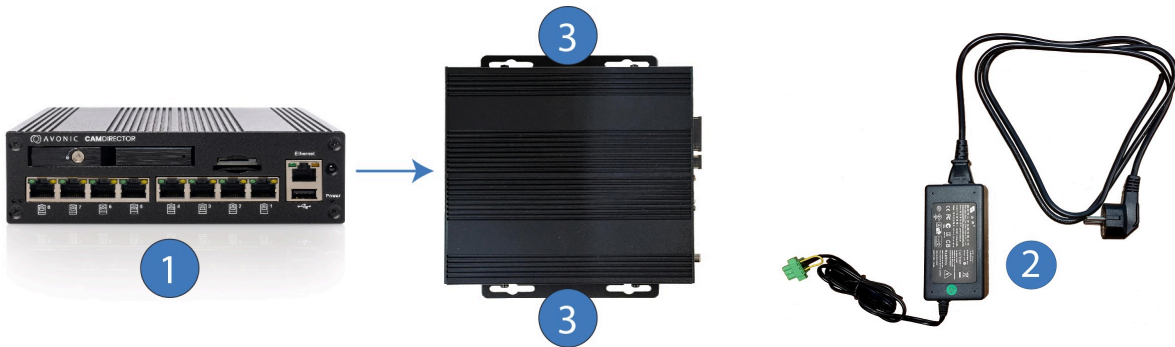
1. Package Contents
2. Handling Precautions
3. Unpacking the CD500
4. Return Procedure

## Package Contents

The following table contains an overview of the package contents of the Product.

No.	Quantity	Description	Avonic SKU
1	1 pc	CD500	AV-CD500
2	1 pc	CD500 Power Adapter	AV-CD500-PSU
3	2 pc	CD500 Mounting shield	-

Each item is visualized below and referenced by the associated number in the table above:



## Handling precautions



- Be careful with the CD500. The CD500 is made of sensitive electronic components that could be easily damaged. Place the CD500 always on a hard and stable surface! Be sure that this surface could carry the weight of the CD500!
- Be careful with the PSU cable and check the cable regularly.

## Unpacking the AV-CD500

 Execute the following steps to unpack the camera and associated components:

1. Open the box.
2. Verify the following on and inside the box:
  - If the box and the plastic CD500 bag are sealed.
  - If the CD500 is placed inside the box in its protective foam.
  - If the contents of the box matches exactly the items as described in [Package Contents](#) on page 11.
  - If this is NOT the case, contact Avonic and stop here. See also the picture below:

The AV-CD500 should be in its protective foam as follows:



3. Break the seal of the sealed CD500 bag.
4. Take the CD500 out of the bag. Be sure to follow the [Handling precautions](#) on page 11 while doing so.
5. Install the CD500 following the steps as described in the chapter [Mounting](#) on page 8

## Return Procedure

 If, for any reason, you have to return the CD500 to Avonic. Execute the following steps:

1. Place the CD500 back in its protective foam.
2. Place the CD500 with **all** of its components in the box.
3. Verify that the contents of the box **exactly** matches the items as described in [Package Contents](#).
4. Contact [Avonic](#) for the Return Procedure.

# MOUNTING AND INSTALLATION

The CD500 is a hardware unit and part of the [CamDirector® \(system\)](#). This chapter describes the steps you have to perform to mount and install the CD500 in a correct and safe manner.

These steps are subdivided into the following groups, each of which is described in a separate section:

1. Mounting on a wall using the mounting shields
2. Connecting the Components to the CD500



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

- Set up the Product 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 Product. (See '**General Specifications > Weight product**' in the CD500 Datasheet for the exact weight.)
- Use a safety loop or drop protection that prevents the Product from falling if the mounting construction fails.
- During mounting and installation, NEVER install the Product 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.

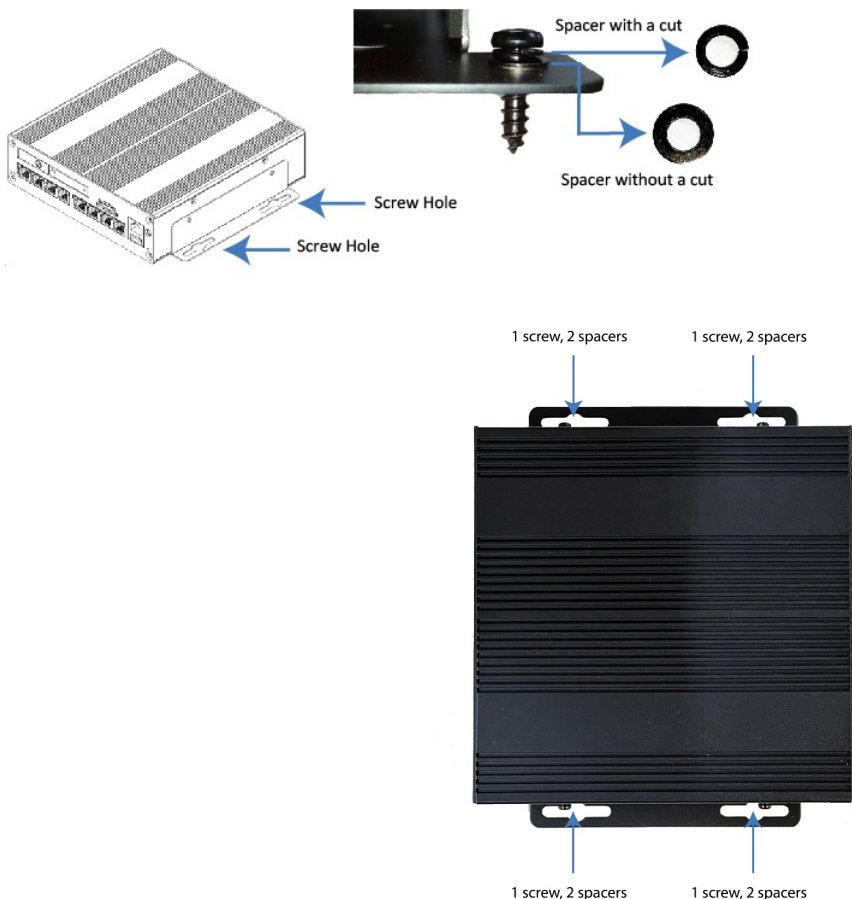
## Mounting to a wall using the mounting shields

It is also possible to mount the CD500 using the delivered mounting shields to a wall.



Follow instructions below:

1. The mounting shields are already connected to the CD500. Use the supplied screws (4) and place for every screw hole 2 spacers. The spacer **with** a cut should be above the spacer **without** a cut.
2. Connect the bottom of the mounting shield to a wall using the screws. See the pictures below.

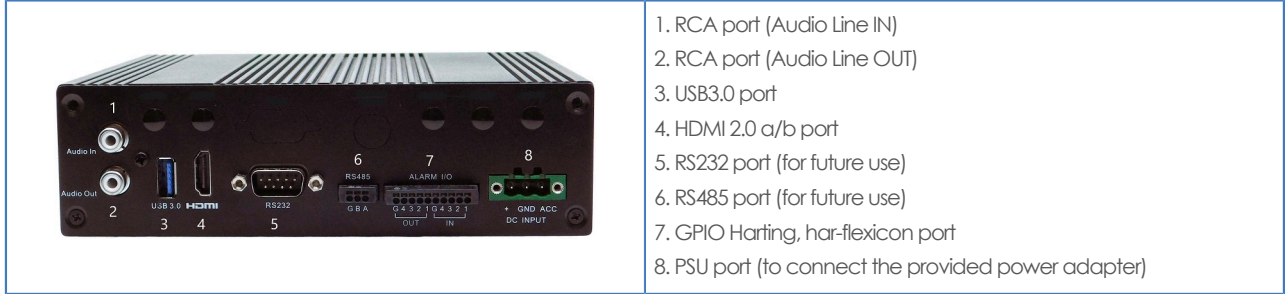


## Connecting the components to the CD500

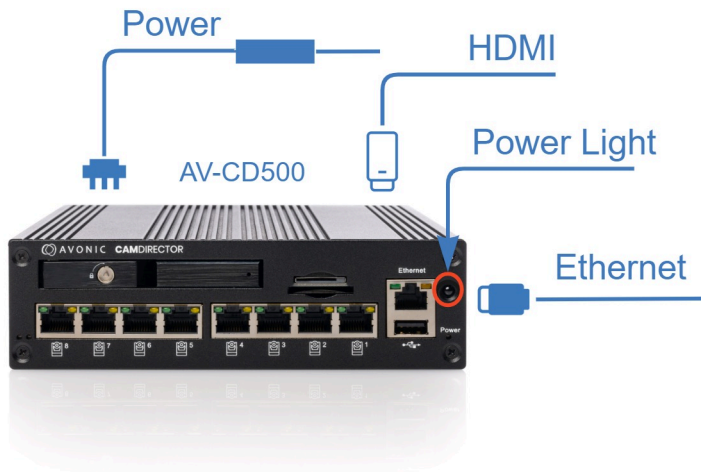


Execute the following steps to connect the components to the CD500:

1. Connect all provided components (see [Package Contents](#)) to the ports at the back of the CD500



2. Connect a HDMI cable to the HMDI port of the CD500 to see its video output.
3. Connect an Ethernet (CAT6a) cable to the ethernet port at the front of the CD500.
4. Connect the supplied power cable and adapter to the PSU port at the back of the CD500. After connecting the power cable and adapter the CD500 will start automatically. The power light next to the Ethernet port will turn ON. See the pictures below:



### Download User Manuals

Download the [manuals](#) for the activated software modules and follow those instructions for the additional steps necessary to configure the CamDirector® system further.

### Compatible hardware list

The following hardware is compatible with the CD500:

#### Audio Interfaces

- Focusrite Scarlett 2i2 3rd Gen
- Focusrite Scarlett 4i4 3rd Gen
- Behringer U-Phoria UMC204HD

#### Cameras

- AV-CM70-IP
- AV-CM70-NDI
- AV-CM71-IP
- AV-CM73-IP

# MAINTENANCE

## CD500 Maintenance



Take the following actions to maintain the CD500:

- If you will not be using the CD500 for a long time, turn off the power switch and disconnect the AC powercord of the AC adaptor to the outlet.
- Use a soft cloth or tissue to clean the CD500 cover.
- Please use the soft dry cloth to clean the lens. If the camera is very dirty, clean it with diluted neutral detergent.



**Do not use any type of solvents, which may damage the surface.**

## Usage Precautions



Take the following precautions to ensure good image quality:

- Do not operate close to powerful electromagnetic radiation, such as TV or radio transmitters, etc.



# TRANSPORT AND STORAGE

Specific guidelines apply for transportation and storage of the CD500. Follow the guidelines below:



## Transport:

1. The CD500 needs protection against vibration and shock. Ensure that the CD500 cannot move inside its box and inside the transportation vehicle. Ensure also that the box is properly sealed.
2. Avonic's address and/or the address of the local distributor should be clearly visible on the package.
3. Keep the transportation vehicle dry and maintain the temperate and humidity when transporting the CD500. See '**Operating humidity**' and '**Storage temperature**' in the provided **Datasheet** for the applicable values.



## Storage:

1. Maintain adequate ventilation in your storage room and ensure that any (other) materials does not obstruct the ventilation.
2. Do NOT store the CD500 in a storage room together with (highly) flammable materials or where the air contains such chemicals.
3. Ensure that the CD500 has protection against vibration and shock inside the storage room and cannot move or fall of.
4. Keep the storage room dry and maintain the temperate and humidity when storing the CD500. See '**Operating humidity**' and '**Storage temperature**' in the provided **Datasheet** for the applicable values.




## DISPOSAL AND RECYCLING

In general, the term 'E-Waste' or 'Waste of Electrical and Electronic Equipment' applies to items of all types of electrical and electronic equipment and its parts that have been discarded by the owner as waste without the intention of re-use.



E-Waste, like the CD500 and **ALL** of its accessories, needs to be disposed **separately** from normal waste! See the symbol below that can be found on the product and package label:



 Avonic is NOT responsible for personal data left in the settings of the CamDirector as far as this is possible (like IP Addresses, user names, passwords etc.) **Delete** personal data **BEFORE** you send the CD500 back to Avonic!



Send the CD500 and all its accessories to [Avonic](#) or your **local distributor**. See [Package Contents](#) to see what you have to send back. Follow the instructions from the [Return Procedure](#).

Avonic outsources the disposal and recycling of its E-Waste CD500 materials to **Stichting Open**.



See <https://stichting-open.org/> for more information about the disposal and recycling.

# TROUBLESHOOTING

## General



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

## Power Issues



If the CD500 power LED is OFF:

1. Check the net power.
2. Check the power cables and adapter.
3. Check the quality and length of the (HDMI) video cable connected to the CD500.

## No video output signal over IP or HDMI from the CD500



If there is no video output over IP or HDMI from the CD500 check:

1. Power cable quality and connection to the NET power.
2. Check the Ethernet cable between the CD500 and the LAN switch.
3. Check the HDMI cable between the CD500 and the monitor.



Avonic CD500  
AV-CD500

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