

Introduction

– Thank you for your confidence

Thank you for the confidence you have placed in us by choosing this product.

Please read this manual completely and carefully before installing and using the product. Please keep this document with the product for future reference. If you sell the product, please give this document to the new owner of the product.

Naostage does not accept responsibility for damage to this product, property or persons caused by installation, use and maintenance that are not in accordance with the contents of this manual, or by modifications to this product.

Naostage reserves the right to modify and improve the information present in this manual at any time and without notice. You can download the latest version of this document at the following address : www.naostage.com

Naostage reserves the right to modify and improve the product over time, without having to integrate these modifications on previously sold products.



Table of contents

1. Product receipt	3
2. Safety Instructions	3
3. Presentation	5
3.1. Description	5
3.2. Physical elements	6
3.3. Cameras	7
3.4. Shutters	7
3.5. Infrared floodlights	8
4. Technical specifications	9
5. Dimensions	10
6. Installation	11
6.1. Installation of the rigging devices	11
6.2. Product installation	13
6.3. Use of yokes	13
6.4. Product wiring	16
7. Maintenance	17
7.1. Cleaning the optics	17
7.2. Cleaning the dust filters	18
7.3. Checking the operation of the shutters	18
7.4. Cleaning of the internal components of the product	19
7.5. Repair	21
8. Product disposal	22
9. Warranty	22

1. Product receipt

Inside the box, you will find :

- 1 Kapta 640
- 2 Omega plates
- 2 clamps for 50mm diameter tube
- 1 power cord
- 1 safety sling
- 1 user manual
- 1 document "Kapta 640 - Installation charts"
- 2 yokes and 2 additional clamps (if ordered additionally)

Upon receipt of the product and before use, please check that all equipment is present and free of defects. If you find any defect or sign of damage, please contact **Naostage** immediately before use.

2. Safety instructions

Naostage declines all responsibility for damage to this product, to property or to persons, due to installation, use and maintenance not in accordance with the contents of this manual.

Failure to follow the safety, installation or assembly instructions, as well as any modification of the product, will invalidate the warranty.



WARNING : Infrared radiation emitted from this product, never look directly at infrared sources.



WARNING : The temperature of the product can reach 90°C in places. Do not touch the product with bare hands during operation.

WARNING : High voltage. Risk of electric shock.

WARNING : This product is a Class I equipment. Its safety depends on its connection to a compliant installation equipped with a differential and properly grounded.

WARNING : Do not expose the product to rain or humidity.

WARNING : Using this equipment in a residential environment may cause electromagnetic interference.

The power supply of this product is 230V AC type. Please check that the power source you want to connect this product to is compatible.

Before plugging in the product, check that the power cord is not damaged.

Always handle the power cord by the plugs. Never pull on the cord cable.

Do not plug this product into a graduated outlet.

Check that the support on which the product is installed can accept the weight of the product, taking into account the necessary safety factors.

When installing the product, always use a properly sized safety sling.

Before using the product, check that the external screws are properly tightened.

Make sure that no objects are blocking the ventilation openings when using this product.

Do not install the product where it may be exposed to extreme heat, moisture or dust.

Never touch the product's optics with your fingers or any object that could scratch them.

Make sure the product is unplugged from the mains before any intervention on it.

The product has an IP20 protection rating and can only be used indoors. It must not be installed in a place where it could be reached by water projections.

The ambient temperature at the place of installation of the product must never be outside the temperature range 0°C - 45°C.

Never let the sun or spotlight shine directly on the product's lenses, as it may cause damage to the camera's sensors.

This product is for professional use only.

This product must not be accessible to children.

3. Presentation

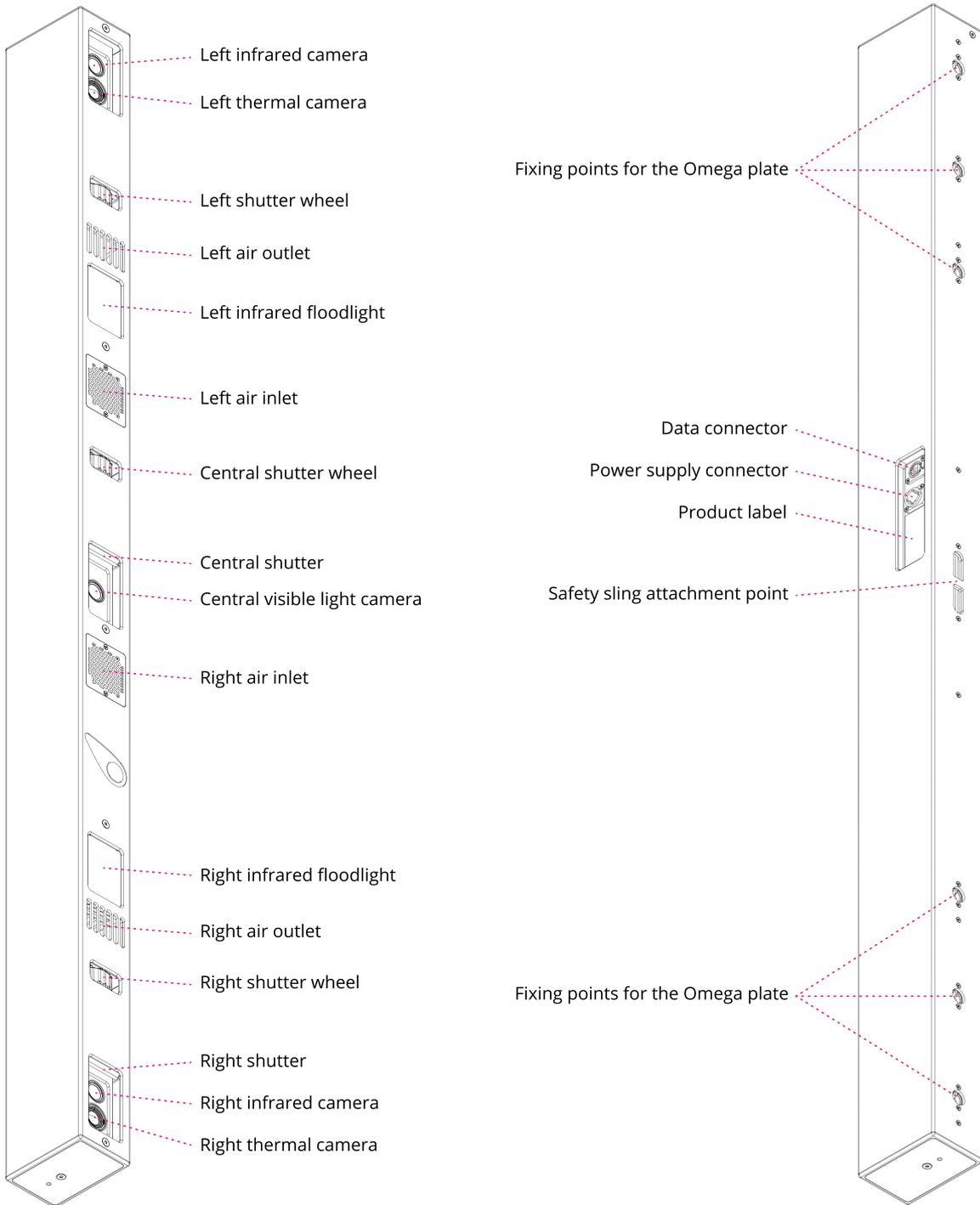
– 3.1. Description

Kapta 640 is a multispectral vision sensor for automatic and beaconless human tracking. A Kapta 640 can cover an area of up to 20 meters wide by 12 meters deep for an installation at 10 meters high. Its simple installation allows the tracking system to be set up in less than 20 minutes.

Its wide installation height range and large field of view give it the versatility to operate on many stage configurations.

Two Kaptas 640 can be connected to the same Kore to increase the achievable tracking area and expand the tracking possibilities.

– 3.2. Physical elements



– 3.3. Cameras

The product is equipped with 5 cameras:

- 1 visible light camera
- 2 infrared cameras
- 2 thermal cameras

These cameras allow the product to have a wide coverage of the electromagnetic spectrum.

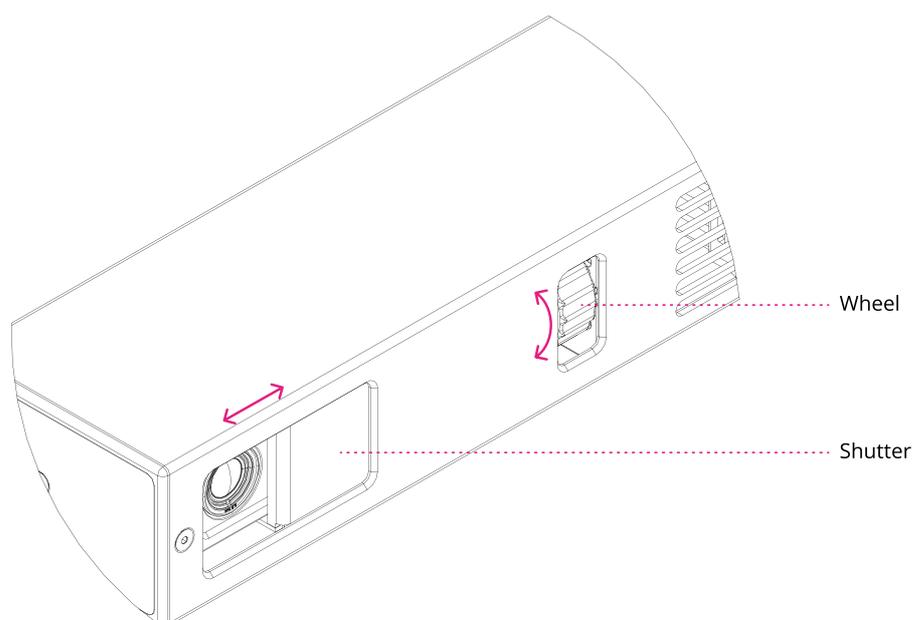
WARNING : The camera optics are fragile, be careful not to touch them with your fingers or any object that could dirty or scratch them. To clean the optics, please refer to the chapter "cleaning the optics".

– 3.4. Shutters

The product includes mechanical shutters, protecting the cameras' optics when the sensor is not in use. These shutters are motorized and can be operated remotely. When the product is not powered, the shutters can be manually operated using a thumbwheel.

WARNING : Be sure to use only the thumbwheel to open or close a shutter manually. Do not attempt to manipulate the shutter other than with the corresponding wheel. When operating the shutter with the thumbwheel, be careful not to force the shutter when it reaches the end of its travel.

The shutters can be controlled remotely from the Kratos software.



– 3.5. Infrared floodlights

The product has two dimmable infrared LED floodlights of 80W each allowing to adjust the infrared light intensity present on stage.

WARNING : Infrared radiation emitted by this product. This product belongs to risk group 1 (low risk) according to EN 62471.

WARNING : The windows of the infrared floodlights can reach a high temperature.

NOTE : The light sources in the product can only be replaced by **Naostage**. For any replacement of the infrared floodlight, please contact **Naostage**.

The intensity of the floodlights can be adjusted from the Kratos software.

In order to preserve the lifespan of the LEDs in the floodlight, the maximum power allowed for the floodlight is limited based on their temperature : If the temperature of the floodlight exceeds 70°C, the maximum power allowed for the floodlight is gradually reduced to 0% if the temperature exceeds 80°C. In this case, it is necessary to wait for the temperature to drop below 60°C before turning the floodlight back on.

The speed of the fans also follows the temperature of the floodlight. It is limited to 50% up to a temperature of 30°C, allowing the product to operate silently. If the temperature of the floodlight exceeds 30°C, the fan speed is gradually increased until it reaches 100% at 50°C.

4. Technical specifications

– Mechanical characteristics

Weight	12 kg
Dimensions (without Omega plates, lxwxh)	1560x120x80 mm
Dimensions (with Omega plates, lxwxh)	1560x153x134 mm

– Electrical characteristics

Consumption	220 W
Power supply voltage range	230 V
Power frequency	50 Hz
Neutral point treatment	TT
Appliance class	Class I
Overvoltage category	CAT II

– Environment

Operating temperature range	0 - 45 °C
Maximum surface temperature	90°C
Maximum relative humidity	80 %
Protection class	IP20
Pollution Degree	2
Maximum operating altitude	2000 m
Operating environment	Indoor

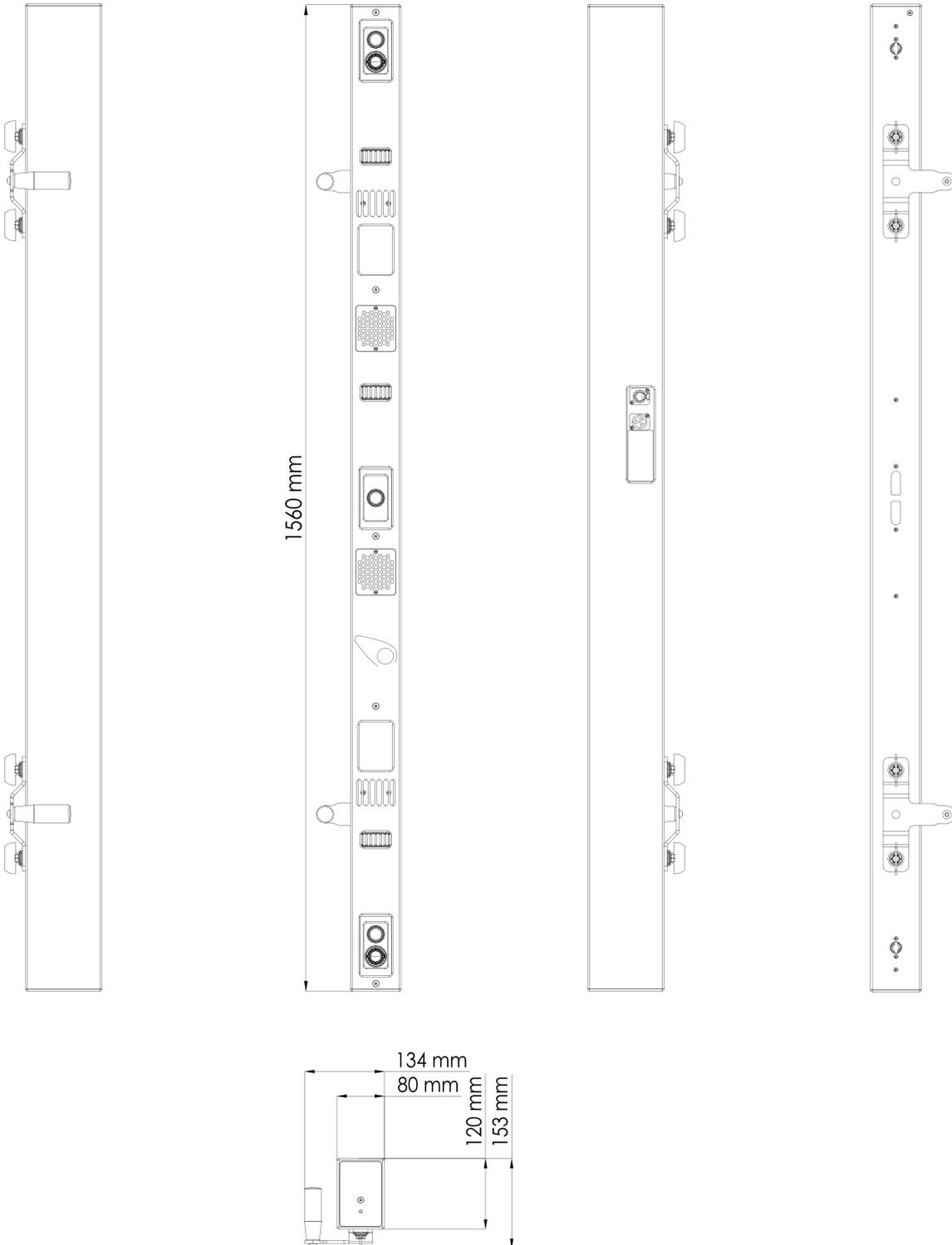
– Connectivity

Product power supply connector	PowerCON TRUE1 TOP
Power supply cable connector	CEE 7/7
Data connector	EtherCON CAT6a

– Noise measurements

Min fan load (IR floodlights temperature < 30°C)	38 dB(A)
Max fan load (IR floodlights temperature > 50°C)	53 dB(A)

5. Dimensions

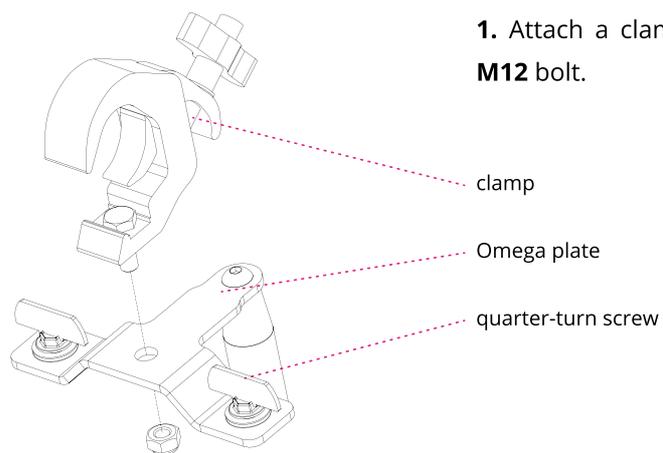


6. Installation

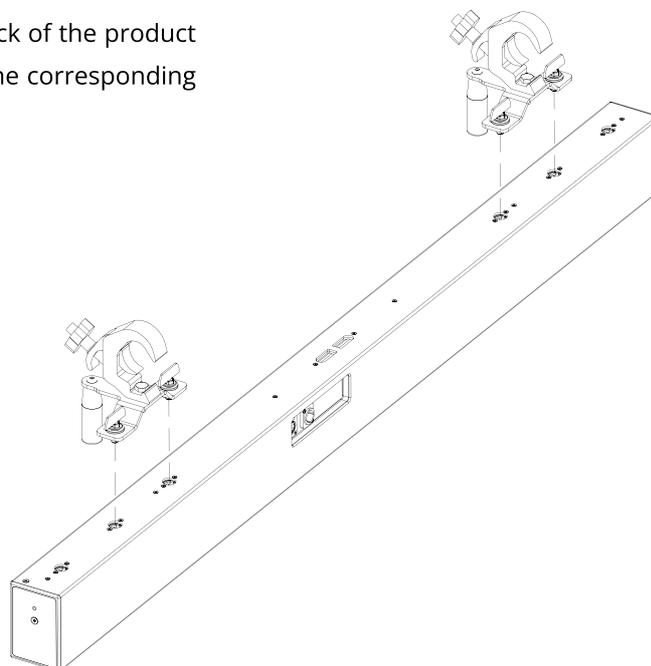
WARNING : The product must be installed by a qualified person.

WARNING : Use hooks and a safety sling adapted to the weight of the product.

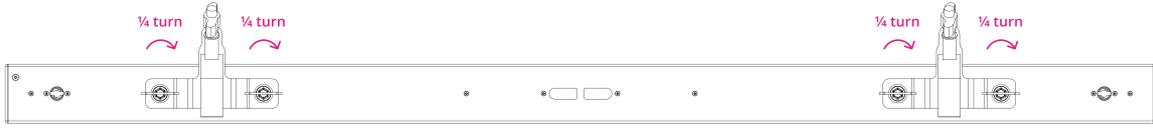
– 6.1. installation of the rigging devices



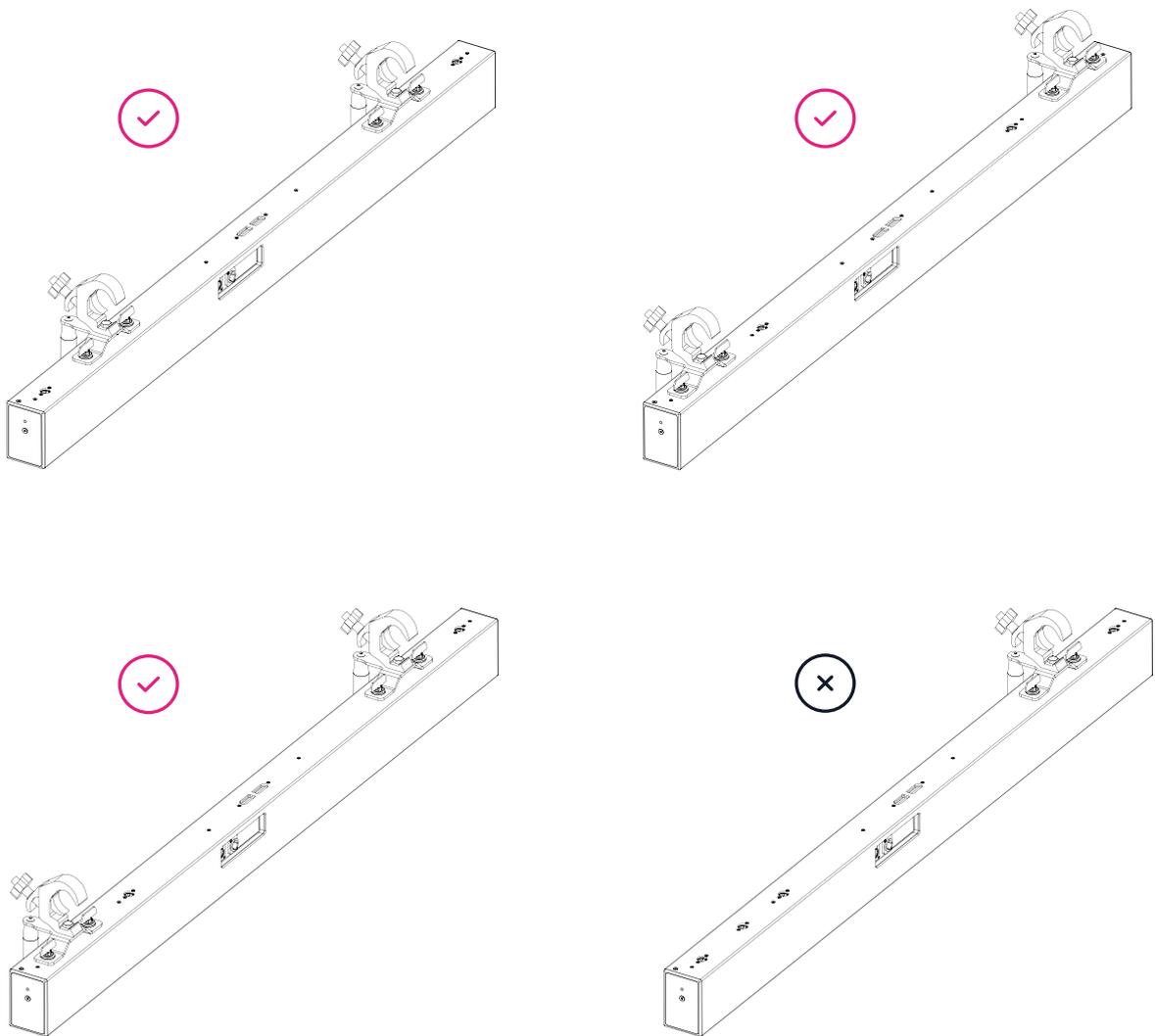
2. Install the two Omega plates on the back of the product by matching the quarter-turn screws to the corresponding fixing points.



3. Lock the quarter-turn screws of the Omega plates by tightening them clockwise.



Several installation configurations of the Omega plates are available depending on the desired installation of the product. Always use both Omega plates to hang the product regardless of the installation configuration.



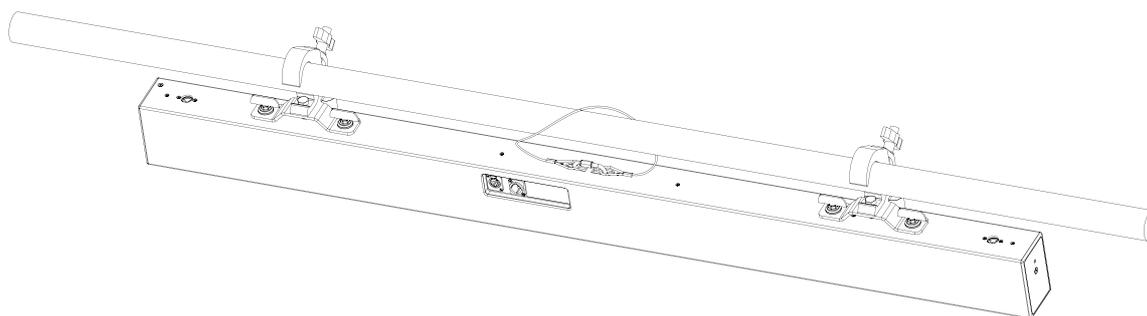
– 6.2. Product installation

The product must be installed on a horizontal structure, above and directed towards the desired tracking area. The angle and height of the product installation should be calculated according to the dimensions and position of the desired tracking area

WARNING : Make sure that the structure on which the product is installed is properly sized to support at least 10 times the weight of the product and that it is properly installed and secured.

WARNING : Be sure to use clamps that are appropriate for the structure on which the product is installed.

1. Hang the product on the structure with the two clamps and tilt it to the desired angle.
2. Secure the product in place by tightening the two clamps.
3. To secure the product, attach it to the structure with a safety sling. Attach the carabiner of the sling to the attachment point provided and pass the sling around the structure as shown below:



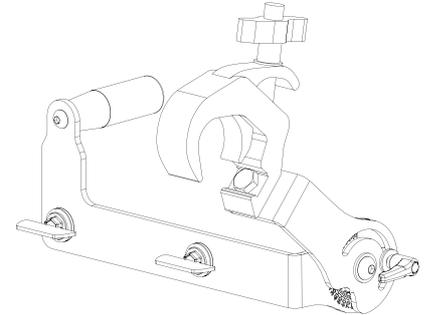
The correct orientation of the product is with the connectors facing down.

The product should be installed at a height between 5 and 15 meters for proper tracking.

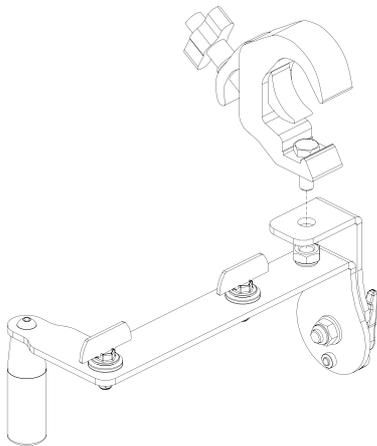
To determine the possible installation positions according to the desired tracking area, please refer to the Kapta 640 installation charts. For complex configurations, please contact **Naostage** directly for a customized study of feasible installations.

– 6.3. Use of yokes

The yokes are additional accessories that allow for easier installation of the Kapta. Their articulation and graduation allow the sensor to be oriented without effort and without additional tools.

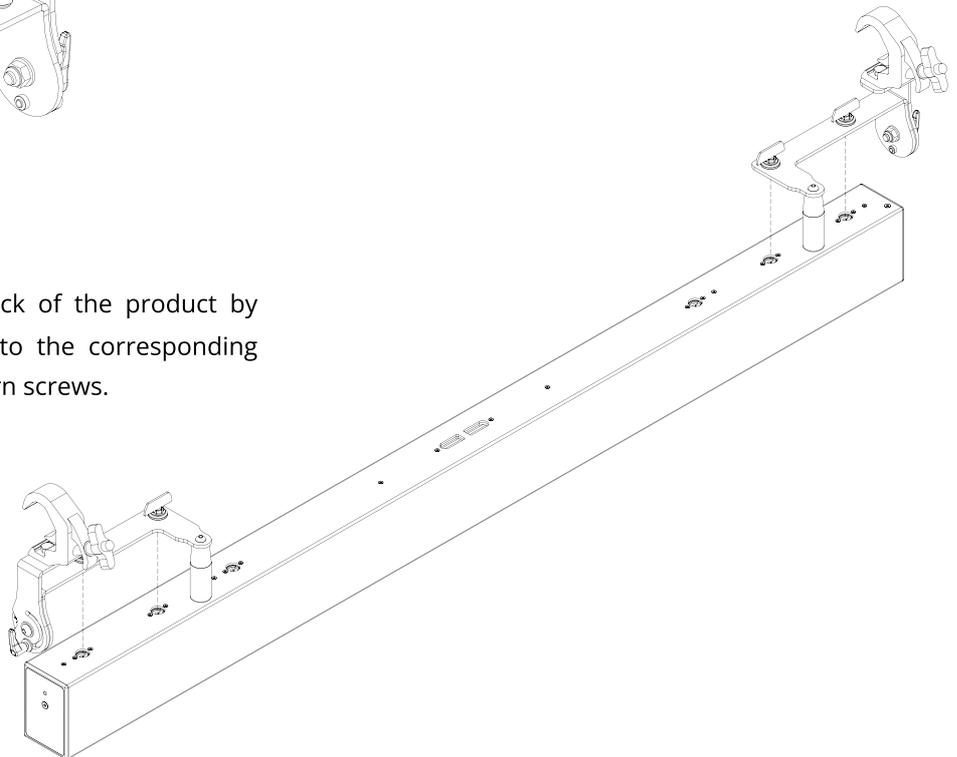


Procedure for the installation and use of the yokes :



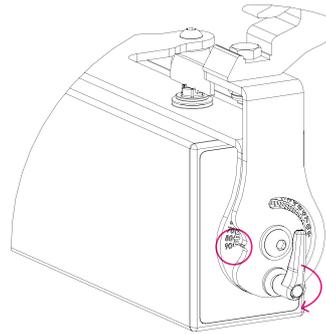
1. Attach a clamp to each yoke with an **M10** or **M12** bolt.

2. Install the two yokes on the back of the product by matching the quarter-turn screws to the corresponding fixing points and lock the quarter-turn screws.

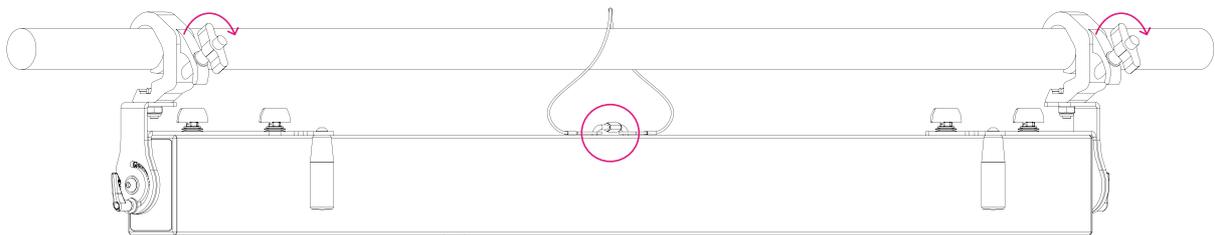


WARNING : The yokes have a direction of installation: the handle of each yoke must be positioned on the top of the sensor (opposite side to the connectors).

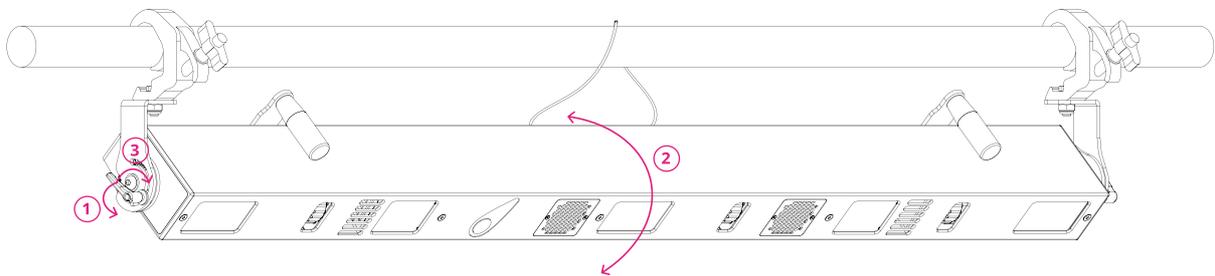
3. Make sure that the yokes are in the 90° position with the hook positioned at the back of the sensor and that the levers are tightened.



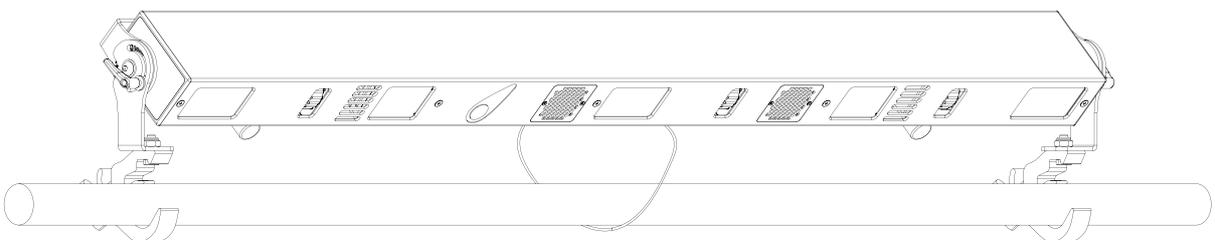
4. Hang the sensor on the structure with the two clamps, tighten the clamps and secure the sensor with a safety sling



5. Loosen the levers on the yokes and adjust the sensor to the desired angle using the markings on the yokes. The value shown is the angle of the sensor to the horizontal. Tighten the levers to hold the sensor in place.



To gain installation height, it is possible to reverse the direction of installation of the yokes (handles positioned on the underside of the sensor) and install the sensor in a overhead way. .



– 6.4. Product wiring

WARNING : This product is a Class I equipment. It is imperative to connect it to the ground.

Do not use a power cable longer than 2m to supply the product.

Use a Cat 6A Ethernet cable to connect the product to a Kore. When the product is connected to the Kratos software, the shutters protecting the cameras open automatically.

Each product requires a 1Gb/s connection. If several product are connected on the same network, make sure that the network is correctly sized (2.5Gb/s or 10Gb/s).

Please ensure that the connectors are accessible when the product is installed. If not, the electrical installation must have an accessible disconnect switch that complies with the EN 60947-3 standard.

To avoid the risk of strangulation, please ensure that the cables are securely fastened to the hanging structure if the product is installed within reach.

7. Maintenance

WARNING : Please unplug the power cord before servicing. Do not perform any maintenance on the product when it is switched on.

Apart from the components mentioned in this chapter, the product does not contain any user serviceable components. Please refer all repairs and maintenance other than those listed in this chapter to **Naostage** authorized personnel.

It is important to maintain the product regularly to ensure proper operation. Please follow the instructions below to properly maintain your product.

– 7.1. Cleaning the optics

In order to ensure optimal performance of the product, it is important that the optics are as clean as possible. Since the optics are fragile objects, it is important to follow the following instructions for cleaning them:

- **Do not blow on the optics** to avoid contaminating their surface with saliva particles.
- **Use compressed air** to remove dust or residue from the optics.
- **Wear gloves when cleaning**, as grease on your fingers can damage the optics. If a fingerprint is left on an optical surface for a long period of time, it may become a permanent stain.
- To remove residues that are resistant to compressed air, **use a lens brush** to remove them.
- **Use an optical cloth and a drop of optical cleaning solution** to clean any remaining residue.
- **Do not use a cloth not intended for this purpose** as it may scratch the optics during cleaning.
- **Do not use alcohol or any other chemical agent not intended for this purpose** to clean the optics.

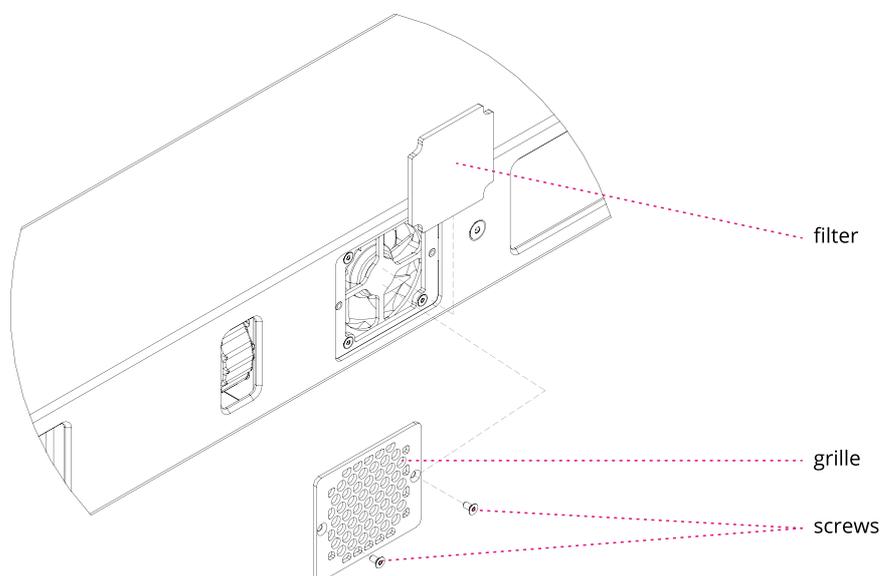
– 7.2. Cleaning the dust filters

The product has two dust filters located at the air inlets. It is important to check the condition of these filters regularly and to clean them before they become clogged.

The filters can be accessed by removing the ventilation grilles on the front of the product :

- Unscrew the two screws holding the ventilation grilles on the front of the product to access the filters.
- Remove the filters from their receptacle and clean them by blowing on them with compressed air.
 - Reinstall the filters in their place and screw the grilles back on.
- Be careful to tighten the screws holding the grilles.

WARNING : Do not use compressed air on the filters when they are installed on the product.



– 7.3. Checking the operation of the shutters

Check manually with the wheels that the shutters are not jammed and that no hard points are felt during their travel.

– 7.4. Cleaning of the internal components of the product

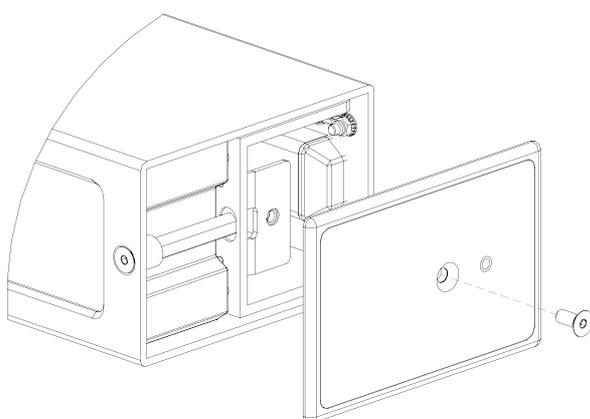
The interior of the product should be cleaned annually with compressed air.

WARNING : This product must be opened by a qualified person.

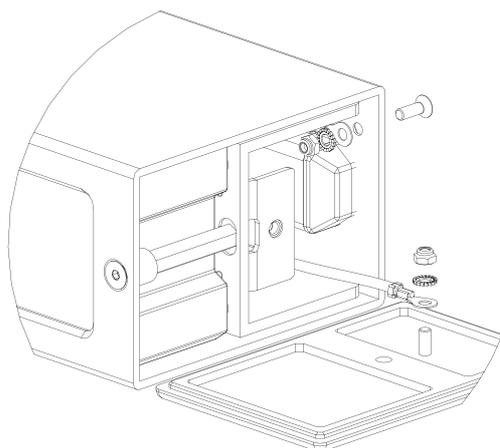
Before opening the product, make sure the shutters are in the closed position.

To open the product, please follow the instructions below:

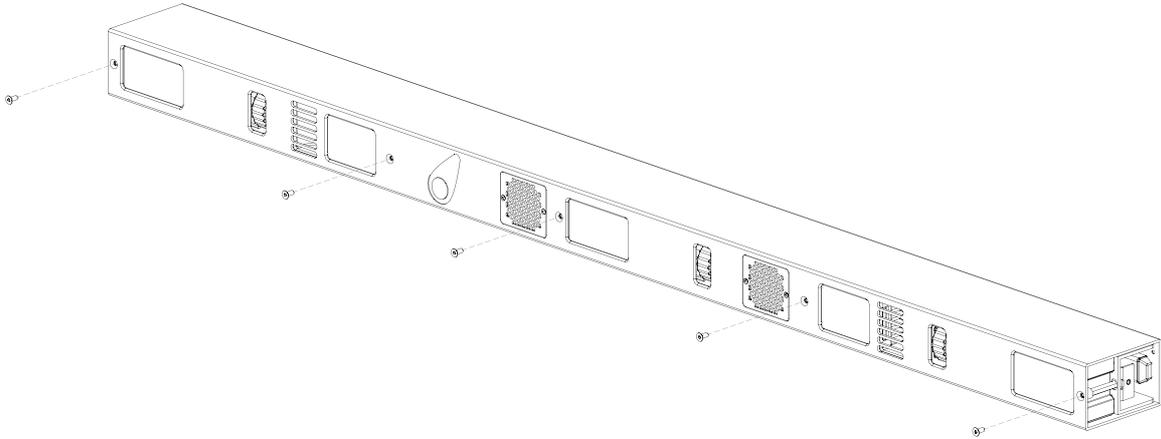
- Unscrew the screw on each side of the product to release the side covers.



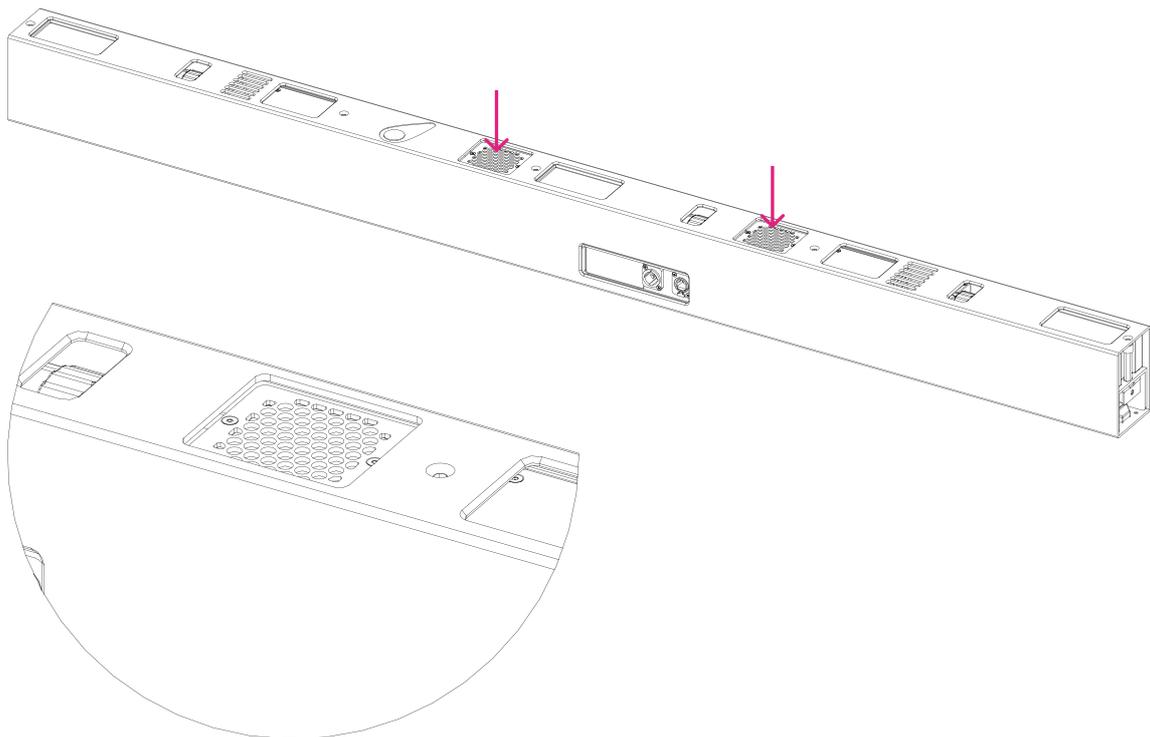
- Unscrew the grounding lug on the left side of the product's case and the grounding lugs on the two side covers.



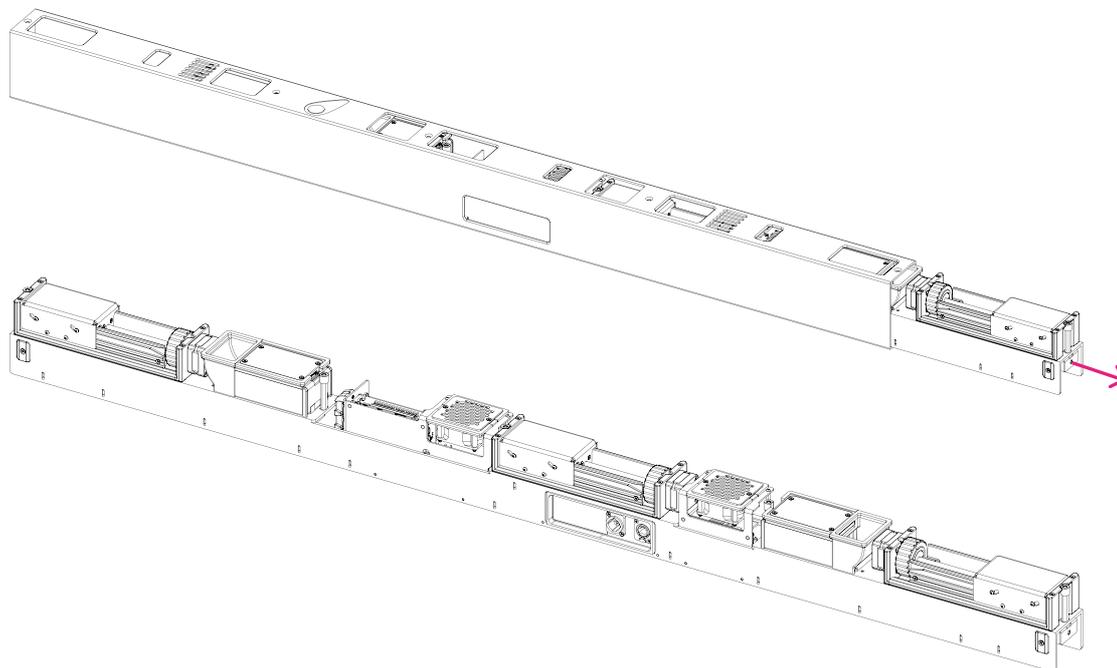
- Unscrew the 5 screws on the front of the product.



- Place the product on its back side. Push on the air inlet grilles until they are located below the front of the case.



- Pull the frame with all components through one end of the case.



- You can then clean the components with compressed air.
- To close the product, repeat the above steps in reverse order. Be sure to properly secure the grounding lugs on the case and side covers.

– 7.5. Repair

The product contains no user serviceable parts. Repair, replacement of any part, or any maintenance more complex than cleaning must be performed by **Naostage** authorized service personnel.

If you find any damage to the product or that the product is not functioning nominally, do not use it under any circumstances and contact **Naostage** directly.

8. Product disposal

Electrical and electronic waste must be disposed of separately from normal waste. When the product has reached the end of its life, please dispose of it in accordance with local regulations. If you have any further questions, please contact **Naostage**.

9. Warranty

The Kapta 640 is guaranteed against manufacturing defects for a period of two years from the date of purchase.

This warranty does not cover damage to the product caused by misuse or use outside the conditions of this user manual.

Defects caused by normal wear and tear of the product are not covered by the warranty.

Any modification of the device will void the warranty.

Naostage can in no way be held responsible for the quality and conformity of the installation of this product, which is the responsibility of the installer.



naostage®

1 Rue de la Noë, 44300 Nantes, France
www.naostage.com