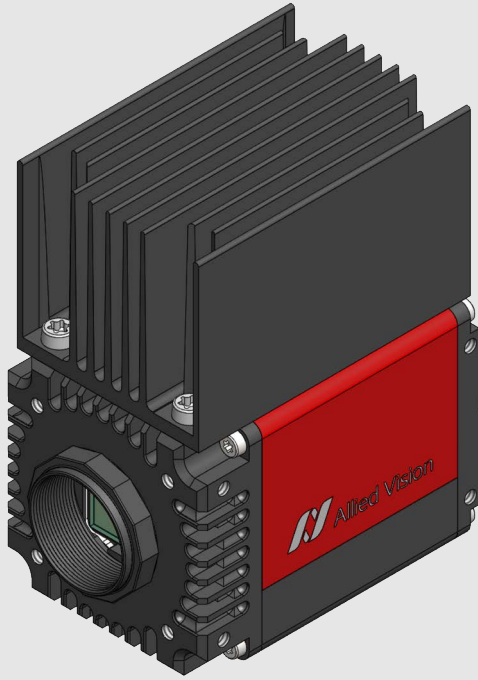




CL, GIGE, AND 5GIGE CAMERAS

Goldeye G/CL, Goldeye Pro G5 Heat Sink Kit User Guide

V1.0.0

**Quick links**

- [This document at a glance](#) on page 10
- [Contact us](#) on page 11
- [Contents](#) on page 12

Read before use

EN - English

Safety

Before using the product, read these safety instructions. Observe the warnings at all times. Use the product only as stated in the [Intended use](#) on page 16.

**CAUTION****Risk of burns**

The product in operation can reach temperature levels which could cause burns.

**CAUTION****Injury by a falling product**

The falling product can cause injury.

Intended use

Intended use of Allied Vision product is the integration into vision systems by professionals. All Allied Vision product is sold in a B2B setting.

DA - Dansk

Sikkerhed

Læs sikkerhedsanvisningerne, før produkt bruges. Overhold alle advarsler. Brug kun produkt som anført i [Intended use](#) på side 16.



FORSIGTIG

Forbrændingsfare

Når produkt bruges, kan det blive meget varmt og forårsage forbrændinger.



FORSIGTIG

Kvæstelser, hvis produkt falder ned

Falder produkt ned, kan dette forårsage kvæstelser.

Tilsigtet brug

Allied Vision produktets tilsigtede brug er en indbygning i et visionssystem, udført af fagfolk. Alle Allied Vision produkter sælges i B2B.

DE - Deutsch

Sicherheit

Bevor Sie das Produkt benutzen, lesen Sie diese Sicherheitshinweise. Beachten Sie diese Hinweise immer. Verwenden Sie das Produkt nur wie beschrieben in [Intended use](#) auf Seite 16.



VORSICHT

Gefahr von Verbrennungen

Im Betrieb kann das Produkt Temperaturen erreichen, die zu Verbrennungen führen.



VORSICHT

Verletzung durch das fallende Produkt

Das fallende Produkt kann Verletzungen verursachen.

Bestimmungsgemäßer Gebrauch

Allied Vision Produkte sind bestimmt für die Integration in Bildverarbeitungssysteme durch Fachpersonal. Alle Allied Vision Produkte werden in einer B2B-Umgebung verkauft.

ES - Español

Seguridad

Antes de utilizar el producto lea estas instrucciones de seguridad. Observe las advertencias en todo momento. Utilice el producto solo tal y como se estipula en el [Intended use](#) en la página 16.



ATENCIÓN

Riesgo de quemaduras

El producto en funcionamiento puede alcanzar temperaturas que podrían provocar quemaduras.



ATENCIÓN

Lesiones en caso de que el producto se cae

Si el producto se cae puede provocar lesiones.

Uso previsto

El uso previsto del producto Allied Vision es la integración en el sistema de visión por parte de profesionales. Todos los productos Allied Vision se venden dentro de una relación B2B.

FI - Suomi

Turvallisuus

Lue nämä turvallisuusohjeet ennen tuotteen käyttöä. Noudata tuotetta joka hetki. Käytä tuotteen ainoastaan kohdassa [Intended use](#) sivulla 16 kuvatulla tavalla.



HUOMIO

Palovammojen vaara

Käytössä olevan tuotteen saavuttamat lämpötilatasot voivat aiheuttaa palovammoja.



HUOMIO

Putoavan tuotteen aiheuttamat vammat

Putoava tuote voi aiheuttaa vammoja.

Käyttötarkoitus

Allied Vision-tuotteen käyttötarkoitus on integrointi kuvajärjestelmiin ammattilaisten toimesta. Kaikki Allied Vision-tuotteet myydään B2B-ympäristössä.

FR - Français

Sécurité

Veuillez lire ces consignes de sécurité avant d'utiliser le produit. Respectez continuellement les avertissements. Utilisez le produit uniquement comme indiqué sous [Intended use](#), page 16.



ATTENTION

Risque de brûlures

Le produit en service peut atteindre des niveaux de température susceptibles d'entraîner des brûlures.



ATTENTION

Blessures en cas de chute du produit

La chute de la produit peut entraîner des blessures.

Utilisation prévue

L'utilisation prévue du produit Allied Vision est son intégration dans des systèmes de vision par le soin de professionnels. Tout produit Allied Vision est vendu dans un cadre B2B.

עברית - HE

בטיחות

לפני השימוש במוצר, עליך לקרוא את הוראות הביטחון האלו. עליך לממש הוראות ביטחון אלו תמיד. השימוש במצלמה הוא רק לפי מה שכתוב ב"כוונת השימוש" ([Intended use](#) בעמוד 16).

זהירות

סכנת כווייה

בזמן הפעלת המוצר עלולות לעלות טמפרטורות גבוהות, שיכולות לגרום לכוויות.



זהירות

פגיעה מנפילת המוצר

נפילת המוצר עלולה לגרום לפגיעה.



שימוש מיועד

מוצרי AlliedVision מיועדים לשילוב במערכות ממוחשבת לעיבוד צילומים ע"י אנשי מקצוע. כל מוצרי AlliedVision נמכרים לשימוש בסביבת B2B.

IT - Italiano

Sicurezza

Leggere queste istruzioni per la sicurezza prima di utilizzare il prodotto. Osservare sempre tutte le avvertenze. Utilizzare il prodotto come descritto alla sezione [Intended use](#) a pagina 16.



ATTENZIONE

Pericolo di ustioni

Durante il funzionamento, il prodotto può raggiungere temperature elevate che possono essere causa di ustioni.



ATTENZIONE

Lesioni dovute alla caduta del prodotto

Il prodotto può causare delle lesioni.

Uso previsto

Il prodotto Allied Vision è concepito per essere integrato in sistemi di monitoraggio in campo professionale. Tutti i prodotti Allied Vision sono venduti in uno scenario B2B.

JA – 日本語

安全性

本製品を使用する前に、この安全ガイドをお読みください。警告を必ず守ってください。必ず21ページの[Intended use](#) 16 ページに従って使用してください。



注意

やけどの危険性

作動中のカメラは、やけどを引き起こす温度まで熱くなる恐れがあります。



注意

製品の落下によるケガ

本製品が落下すると、けがをするおそれがあります。

用途

Allied Vision製品は、専門家が視覚装置に統合することを意図したものです。すべてのAllied Vision製品は、企業間取り引き用に販売されています。

NL - Nederlands

Veiligheid

Lees deze veiligheidsinstructies voordat u het product gebruikt. Neem deze waarschuwingen altijd in acht. Gebruik het product uitsluitend, zoals aangegeven in het [Intended use](#) op pagina 16.



VOORZICHTIG

Risico van verbranding

Het gebruikte product, kan temperatuurwaarden bereiken die brandwonden kunnen veroorzaken.



VOORZICHTIG

Letsel door het vallende product

Het vallende product kan verwondingen veroorzaken.

Beoogd gebruik

Het beoogde gebruik van het Allied Vision-product is de integratie in optische systemen door professionals. Alle Allied Vision-producten worden verkocht in de B2B-markt.

NO - Norsk

Sikkerhet

Les disse sikkerhetsinstruksene før du bruker produkt. Følg advarslene til en hver tid. Bruk kun produkt i samsvar med [Intended use](#) på side 16.



FORSIKTIG

Risiko for brannskader

Produktet i bruk kan nå temperaturnivåer som kan forårsake brannskader.



FORSIKTIG

Skade ved det fallende produktet

Det fallende produktet kan forårsake skade.

Tiltenkt bruk

Den tiltenkte bruken av Allied Vision-produktet er integrering i visjonssystemer av profesjonelle. Alle Allied Vision-produkter selges i en forretning til forretning-situasjon.

SV - Svenska

Säkerhet

Läs igenom säkerhetsinstruktionerna innan du använder produkten. Var hela tiden särskilt uppmärksam på varningarna. Använd enbart produkten på det sätt som anges i [Intended use](#) på sida 16.



VARNING

Risk för brännskada

Produkten i drift kan komma upp i temperaturer som kan orsaka brännskador.



VARNING

Risk för skador från fallande produkter

Fallande produkter kan förorsaka skador.

Avsedd användning

Den avsedda användningen av Allied Vision-produkter är integrering i visionssystem av fackmän. Samtliga Allied Vision-produkter säljs i en B2B-miljö.

ZH - 简体中文版

安全需知

在使用产品之前，请阅读这些安全说明。请务必遵守相关警告和 [Intended use](#) 于第 16 页。



注意事项

烫伤风险

在产品运行过程中，温度可能会上升，导致烧伤的危险。



注意事项

由坠落的产品造成的伤害

产品可能会坠落并造成伤害。

预期用途

Allied Vision 产品的预期用途是由专业人士整合到视觉系统中。所有 Allied Vision 的产品均通过 B2B 渠道销售。

This document at a glance



Read this document carefully

Learn to use heat sinks in the most safe and efficient way and avoid damage to your Goldeye G/CL or Goldeye Pro G5 camera.

Requirement for heat dissipation

Depending on the individual setup, Goldeye G/CL or Goldeye Pro G5 cameras can exceed the specified maximum operating temperature. In many cases, mounting the camera on a metal surface or using a lens will be sufficient to cool the camera effectively. However, especially when operated in higher ambient temperatures, additional measures for heat dissipation, such as using a heat sink, should be considered.

Sensor temperature and image quality

The image quality of an SWIR camera strongly depends on the sensor temperature. Compared to CCD and CMOS sensors, the dark current of InGaAs sensors is relatively high: Several thousands of electrons per pixel create thermal noise. As a rule of thumb, the noise doubles for every 6 to 8 K of sensor temperature. Therefore, the sensor temperature must be low and stable to enable high image quality.

The housings of Goldeye/Goldeye Pro cameras are optimized to dissipate heat to the environment. For some applications, this may not be enough: In microscopy the camera is not mounted to a solid metal base. A fan that is permanently operated is a solution that implies additional power consumption, noise, and dust. And fans must be replaced regularly, causing additional costs.

The Goldeye G/CL, Goldeye Pro G5 Heat Sink Kit provides inexpensive cooling that is flexible and effective.

You can further adjust the camera installation and settings for your individual application, using [Measures for heat dissipation](#) on page 24. If you have doubts or questions, please feel free to contact your Allied Vision Sales representative for support!

Shipping contents

The delivery consists of:

- 1 Heat sink (with thermal pad)
- 4 M4x8 ISO 14580 (T20) screws
- 1 Torx T20 angled screwdriver.



Goldeye/Goldeye Pro camera documentation

For detailed information on Goldeye/Goldeye Pro cameras, select your camera's user guide from www.alliedvision.com/en/support/technical-documentation/.

Contact us

Website, email

General

www.alliedvision.com/en/contact

info@alliedvision.com

Distribution partners

www.alliedvision.com/en/avt-locations/avt-distributors

Support

www.alliedvision.com/en/support

www.alliedvision.com/en/about-us/contact-us/technical-support-repair/-/rma

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Document history and conventions



This chapter includes:

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Document history

Version	Date	Remarks
V1.0.0	2024-Jun-16	Initial release

Table 1: Document history

Conventions used in this user guide

To give this user guide an easily understood layout and to emphasize important information, the following typographical styles and symbols are used:

Typographical styles

Style	Function
Emphasis	Highlighting important things
Web links and references	Links to webpages and internal cross references

Table 2: Typographical styles

Symbols and notes



CAUTION

Risk of burns

Precautions are described.



CAUTION

Injury by falling heat sinks

Precautions are described.



NOTICE

Material damage

Precautions are described.



Practical tip

Additional information helps to understand or ease handling the camera.



Additional information

Web link or reference to an external source with more information is shown.

Compliance, safety, and intended use



This chapter includes:

Intended use	16
Copyright and trademarks	16
Your safety	16
Product safety	17

Intended use

Allied Vision's objective is the development, design, production, maintenance, servicing and distribution of digital cameras and components for image processing. We are offering standard products as well as customized solutions.

Intended use of Allied Vision product is the integration into Vision systems by professionals. All Allied Vision product is sold in a B2B setting.

Unless expressly agreed otherwise, we design, manufacture, and supply in accordance with the standards of the machine vision industry.

In the event of requirements going beyond this, the customer must:

- Notify us of the special use for each model before the first order is placed so that the models in question can be separated out from the standard processes using their own part numbers, and
- Conclude a quality assurance agreement with us prior to purchasing, to define its requirements in a legally secure manner.

This may require a surcharge, as our prices are very tightly tailored to standard requirements.

Copyright and trademarks

All text, pictures, and graphics are protected by copyright and other laws protecting intellectual property. All content is subject to change without notice.

All trademarks, logos, and brands cited in this document are property and/or copyright material of their respective owners. Use of these trademarks, logos, and brands does not imply endorsement.

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Your safety

This section informs about issues related to your personal safety. Descriptions explain how to avoid hazards and operate Goldeye/Goldeye Pro cameras safely.

Handling hot cameras

However, if you hold the camera in your hands during operation, your skin may get hurt. If you touch the camera when it is heated up, we recommend wearing protective gloves.

Providing optimum heat dissipation

Keep the operating temperature in the specified range to enable best image quality and to protect the camera from damage.

For your safety and to improve camera performance, ensure heat dissipation by such as:

- Heat sinks mounted
- [Measures for heat dissipation](#) on page 24.

Heat sink mounting

Heat sinks must be mounted using the mounting threads. If vibration is higher than specified, heat sinks can disconnect from cameras. Falling heat sinks can hurt you. To avoid personal injury:

Mount heat sinks according to the instructions in [Mounting the heat sinks](#) on page 23.

Product safety

Observe the instructions and safety notes in this document to avoid damage to cameras and heat sinks.

Specifications and technical drawings



This chapter includes:

Specifications	19
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Specifications

General specifications

Feature	Specification
Product code	1068300
Product name	Heat sink set for Goldeye-G/CL cameras
Dimensions ¹ : 1 heat sink (Length × width × height)	75 mm × 50 mm × 45 mm
Mass : 1 heat sink with thermal pad and screws	65 g
Supported cameras	Goldeye G/CL and Goldeye Pro G5 cameras
¹ Height relates to the cooling fins, protruding beyond the camera. The curved front part the with mounting holes equals the height of the camera (29 mm).	

Table 3: Goldeye G/CL, Goldeye Pro G5 Heat Sink Kit specifications

Dimensions including the camera

The dimensions in [Table 4](#) relate to Goldeye Pro G5-320/530 TEC1 with C-Mount Type 2 and heat sink mounted.

You can derive dimensions for other mount adapters and Goldeye G/CL from these dimensions.

Dimensions ¹ with Goldeye models	Specification
Goldeye Pro G5-320/530 TEC1 with C-Mount Type 2 and 1 heat sink mounted to the camera top (Length × width × height)	90.8 mm × 55 mm × 100 mm
¹ Rounded values, related to the user guide. See Technical drawings on page 20 for more accurate values.	

Table 4: Goldeye Pro G5 cameras with heat sink dimensions

Technical drawings

The drawings in this chapter show Goldeye Pro G5-320/530 TEC1 with C-Mount Type 2 and heat sink mounted.

You can derive drawings for other mount adapters and Goldeye G/CL from these drawings.

Goldeye Pro G5-320/530 TEC1 with C-Mount Type 2

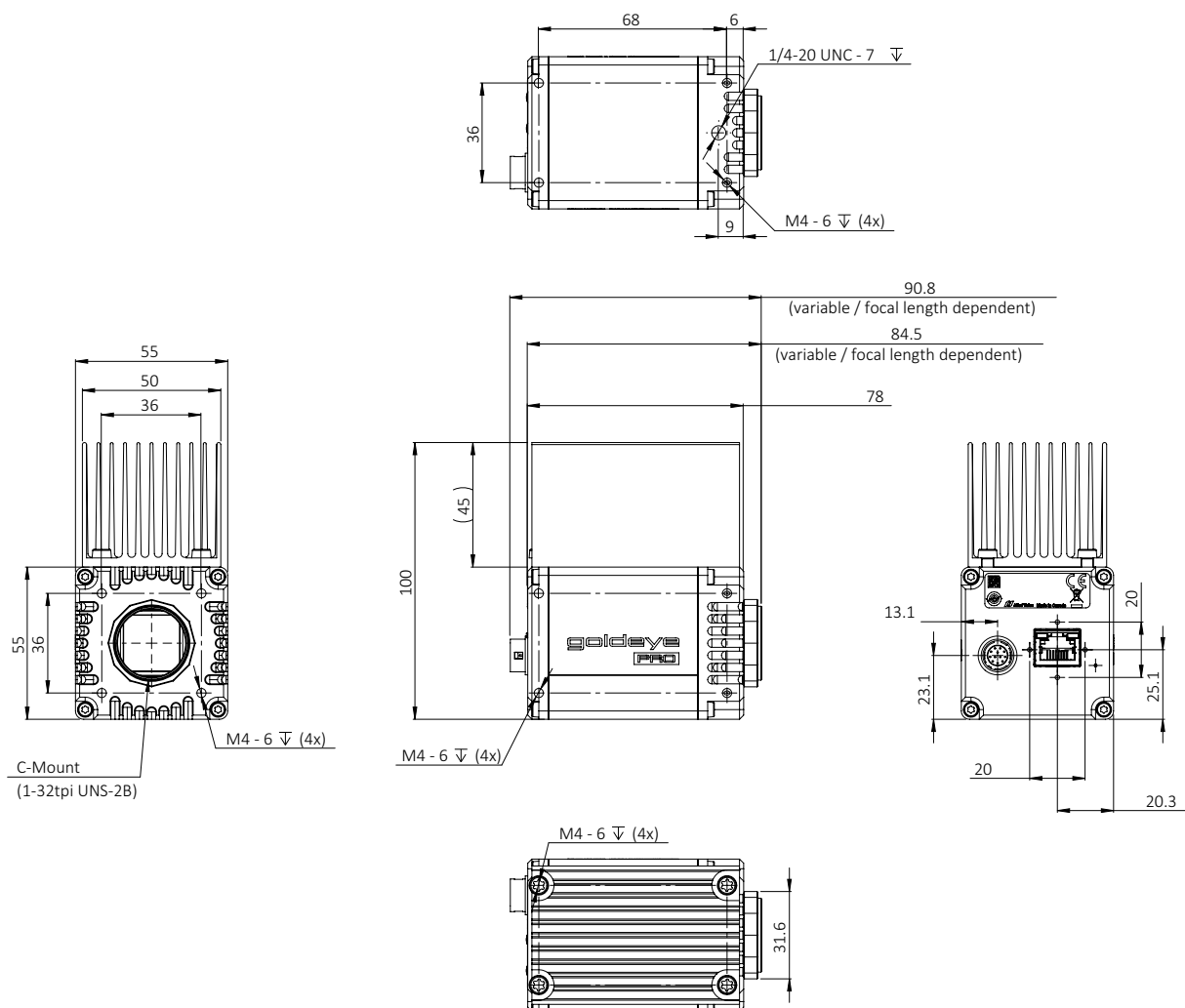


Figure 1: Goldeye Pro G5-320/530 TEC1 with C-Mount Type 2, with heat sink mounted

Mounting heat sinks



This chapter includes:

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Preconditions



CAUTION

Risk of burns

- Operate Goldeye G/CL and Goldeye Pro G5 cameras only with sufficient heat dissipation.
- For measures above using the heat sink kit, see [Measures for heat dissipation](#) on page 24.



CAUTION

Injury by falling heat sinks

Follow the instructions below.

You need the following items to mount the heat sinks to the camera:

- Goldeye G/CL or Goldeye Pro G5 camera
- Heat sink kit:
 - 1 Heat sink (with thermal pad)
 - 4 M4x8 ISO 14580 (T20) screws
 - 1 Torx T20 angled screwdriver
- Additional tools:
 - Clean desktop or work bench
 - Cotton gloves.

Mounting the heat sinks

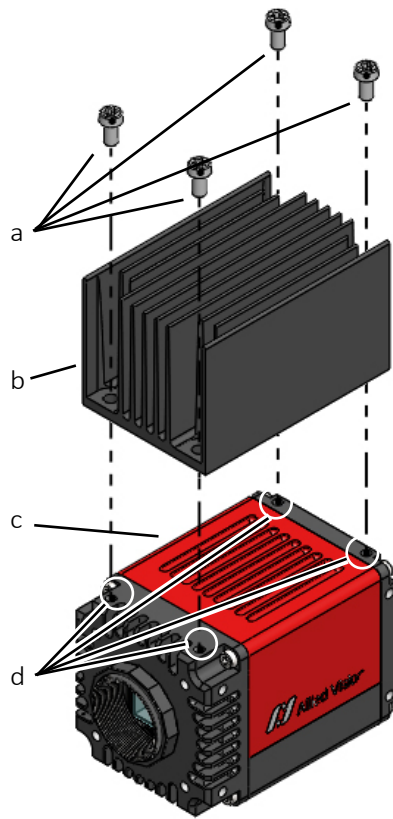


Figure 2: Mounting heat sinks

Up to 4 heat sinks can be mounted to Goldeye G/CL or Goldeye Pro G5 cameras. [Number of heat sinks](#) on page 26 specifies the temperature decrease for different numbers of heat sinks.

These instructions show how a heat sink is mounted to the top of the camera. Of course, they apply to the other sides correspondingly.

Heat sinks are shipped with thermal pads mounted.

1. Put on cotton gloves to keep grease and dirt away from the surface of the camera housing and the heat sink.
2. Fit the heat sink (b) with the mounting holes (d) matching for the heat sink and the camera (c).



CAUTION

Injury by falling heat sinks

- If you are using a torque tool, tighten screws at **2 Nm** maximum torque. Otherwise follow the instruction below.
- Lock screws by such as screw locking varnish.

3. Insert the screws (a) and, using the Torx T20 angled screwdriver, tighten until you feel slight resistance. Then rotate by another **60°**.
4. To ensure that the screws do not become loose over time, we recommend you to use means for securing screws, such as screw locking varnish.

Measures for heat dissipation



This chapter provides a brief overview of measures for heat dissipation:

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Scope

This section gives an overview of potential measures to increase the heat dissipation for Goldeye G/CL and Goldeye Pro G5 cameras after heat sinks have been installed.

Camera power

Camera power by PoE increases the camera's power consumption, resulting in more heat. Therefore, use external power by the I/O connector to reduce heating of the camera.

Lens

Mount a lens or other optical component, preferably with a metal housing. This way, you add another "heat sink".

Mounting base

Mount cameras to a base with a high thermal conductivity. The mounting base should consist of solid metal. Consider that different types of metal with different conductivity have a strong influence, as well as size and shape of the mounting base.

Thermal pads

Use thermal pads (or other conductive media) between cameras and mounting bases. The thermal pads must cover the complete area between the mounted camera and the mounting base.

Number of heat sinks

Heat dissipation from the camera improves with the number of heat sinks that are used at the same time. The table below gives a general indication about the effects to be expected when using multiple heat sinks. [Table 5](#) shows how several heat sinks increase cooling.



Practical tip

This is a rough guideline. Actual results depend on the environmental setup, including, such as air stream and humidity.

Number of heat sinks	Temperature decrease
1	6 K
2	9 K
3	11 K
4	13 K

Table 5: Temperature decrease related to the number of heat sinks

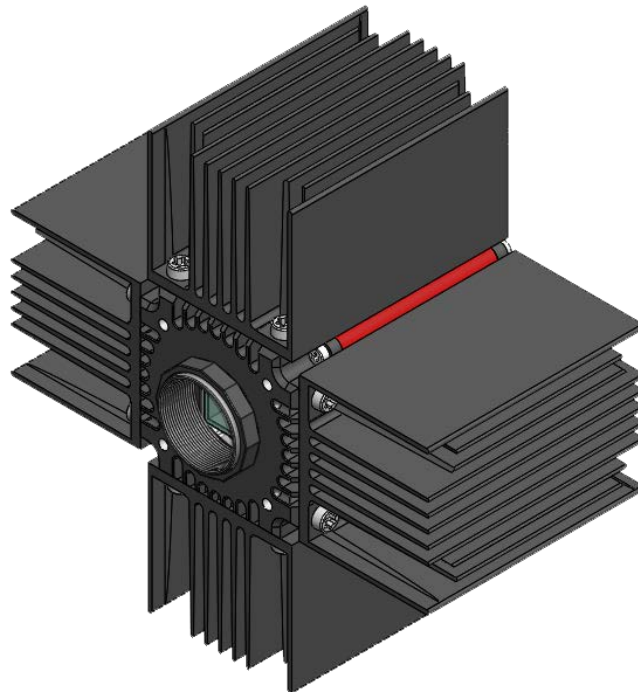


Figure 3: Goldeye Pro G5 camera with 4 heat sinks mounted

Airflow

Provide airflow on the surface of the camera, heat sinks, and mounting base. You can increase the airflow by using fans. Of course, this may have dust and noise as disadvantages.

Sensor temperature control

Because operating conditions are a major factor for sensor temperature, they are described above. When you have optimized these conditions, sensor temperature control enables to reduce the sensor temperature, further improving the image quality.

However, higher sensor cooling results in a higher power consumption, increasing heat again. Depending on your individual application, if you operate Goldeye/ Goldeye Pro cameras at **higher setpoints**, the power consumption of the TEC element is reduced, which can reduce the internal camera temperature. On the other hand, with using the **lowest temperature setpoint** the positive effect on image quality mostly outweighs negative side effects.

Above sensor temperature, using gain or long exposure times adds noise as well. Try to find a trade-off for optimized settings that suit your application.



Additional information

If you need help for your design, please contact our Technical Support team at www.alliedvision.com/en/about-us/contact-us/technical-support-repair/-rma.