PERCIPIO.XYZ

User Manual

PM805-E1 / PM806-E1

2025.02.19 V1.0

Contents

Safety

Safety Precautions

- To ensure safe use, please read this user manual carefully and understand how to use this product correctly before operation. Failure to use and maintain the product according to this manual may result in camera damage or other injuries. Any injuries or losses caused by improper operation are not the responsibility of Percipio, and Percipio assumes no liability.
- Following the warnings in this user manual can effectively reduce risks, but it cannot eliminate all risks.
- Each part of this user manual has been thoroughly checked during compilation. If you have any questions or find any errors, please feel free to contact Percipio at any time.
- This product should be installed, connected, used, and maintained by qualified adult technicians. Proper transportation, storage, installation, connection, use, and maintenance are essential to ensure the safe operation of the product.

User Instructions

- Do not place flammable, explosive, or other dangerous items near the camera. Keep the camera away from open flames and high temperatures. Do not incinerate or crush the product, as this may cause an explosion.
- Avoid collisions, throwing, or dropping the camera. Strong impacts or vibrations can cause damage or operational failure. Any form of modification to the camera is prohibited. Percipio is not responsible for damage or loss resulting from self-repair or disassembly.
- Prevent metal objects, dust, paper, sawdust, and other foreign materials from entering the camera. This can lead to fire, electrical shock, or functional failure.
- Do not use the camera in environments with extreme temperatures. For the operating temperature range for the camera, refer to Appendix: Specifications.
- Avoid using the camera in corrosive environments.
- Use the camera indoors unless specified otherwise. Some cameras are designed for outdoor use; please refer to the user manual for specific instructions.
- Do not point the lens directly at the sun or other strong light sources for extended periods, as this can damage the image sensor.
- Operate the camera at altitudes below 2,000 meters above sea level.
- Install the camera in a well-ventilated and open area.
- It is strictly prohibited to use a power supply with a voltage higher than the standard power supply voltage of the camera to power the camera. Any casualties or any losses suffered by third parties due to your improper operation have nothing to do with Percipio, and Percipio shall not bear any liability.

Pre-use Inspection

- Before each use, carefully inspect the camera to ensure it is in normal working condition. Check for any signs of damage, water ingress, unusual odors, smoke emissions, or missing/damaged screws. If any of these issues are detected, immediately cut off the power and discontinue use.
- High temperatures can cause power cables to age. Please check the power cables regularly to ensure that they are in normal condition and free from aging.

Disposal Instructions

- When disposing of this camera, comply with local regulations to protect the environment. Do not discard used cameras improperly, as improper disposal can cause environmental pollution.

Compliance

PM805-E1 / PM806-E1 3D camera complies with the following standards and test specifications.

> **Note**
>
> Certification status may be updated. For the latest information, please contact support@pcp3d.com.

This product meets the following European Union electromagnetic compatibility standards:

- EN 61000-3-2: 2014
- EN 61000-3-4: 2013
- EN IEC 61000-6-2: 2019
- EN IEC 61000-6-4: 2019

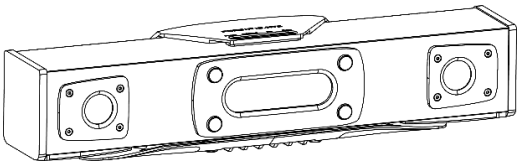
This product meets the American ANSI C63.4-2014 and FCC Code CFR47 PART15B (2022) standards.

RoHS

This product meets the requirements of the mainland China RoHS conformity assessment system:

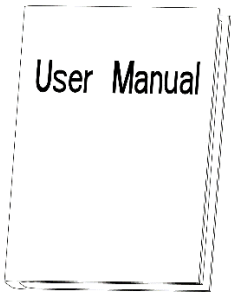
- IEC 62321-3-1:2013
- IEC 62321-4:2013+A1:2017
- IEC 62321-5:2013
- IEC 62321-6:2015
- IEC 62321-7-1:2015
- IEC 62321-7-2:2017
- IEC 62321-8:2017

Unboxing

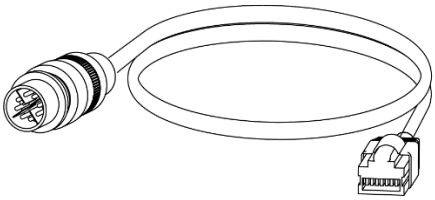


3D Camera x 1

(PM805-E1 / PM806-E1)

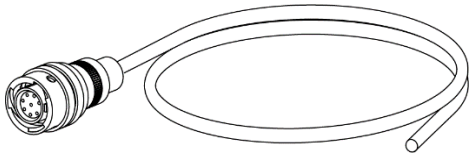


User manual x 1



Gigabit Ethernet Cable

(M12 X-Code to RJ45, optional) x 1



Power & Trigger Cable

(M12 A-Code to Open, optional) x 1

Note

If any items are missing or damaged, please contact support@pcp3d.com promptly.

Hardware Installation

Connectors & Cables

Power & Trigger Connector

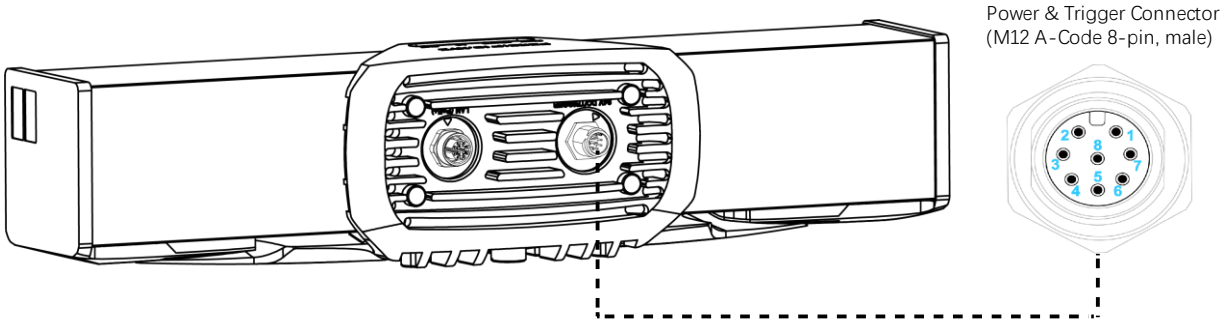


Figure 1: Power & Trigger Connector

Table 1: Power & Trigger Connector Descriptions

Pin Number	Name	Descriptions
1	TRIG_OUT	Trigger output signal
2	P_24V	Power (camera, DC 24V ±10%)
3	P_GND	GND (camera)
4	TRIG_POWER	Power (trigger circuit, DC 11.4V~25.2V)
5	TRIG_GND	GND (trigger circuit)
6	NC	Reserved
7	TRIG_IN	Trigger input signal
8	NC	Reserved

Data Connector and Cable

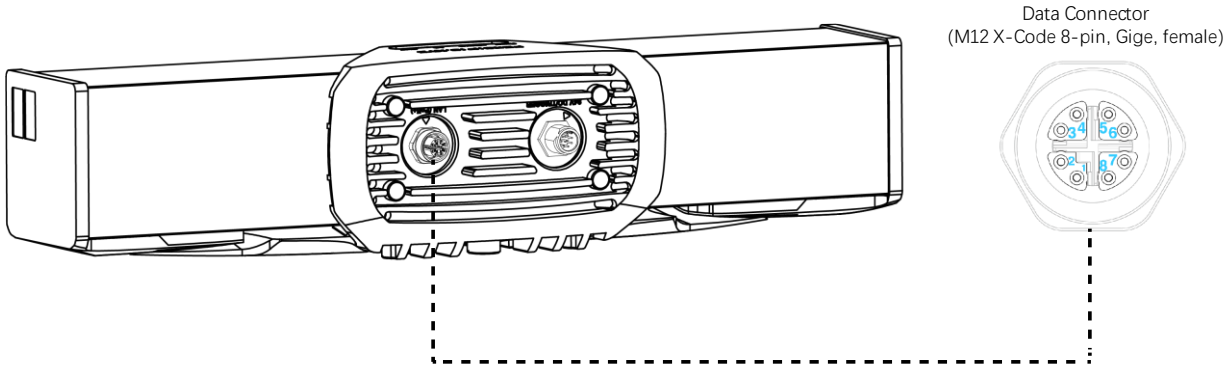


Figure 2: Data Connector Descriptions

The Gigabit Ethernet cable provided by Percipio is an M12 X-Code to RJ45 Gigabit Ethernet cable. The RJ45 end complies with the EIA/TIA 568B standard. The cable description is as follows:

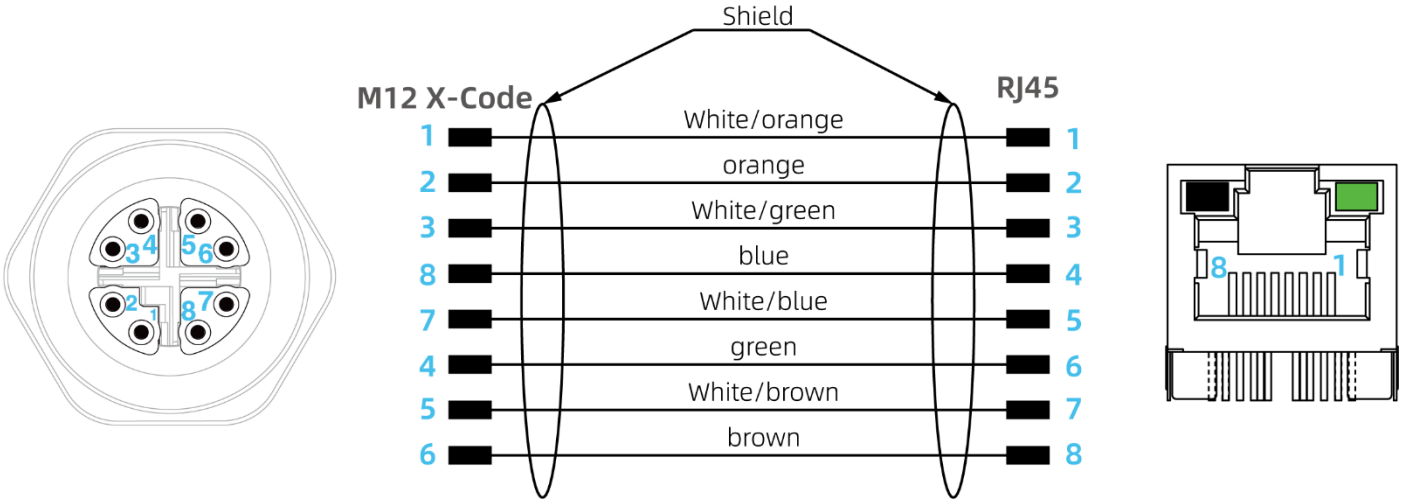


Figure 3: Gigabit Ethernet Cable Descriptions

Indicator Lights

The whole process from power-on to the completion of initialization of this camera takes approximately 40 seconds. When the camera is being initialized, the PWR indicator light stays on constantly. After the initialization is completed, the status of the indicator light is shown in the following table.

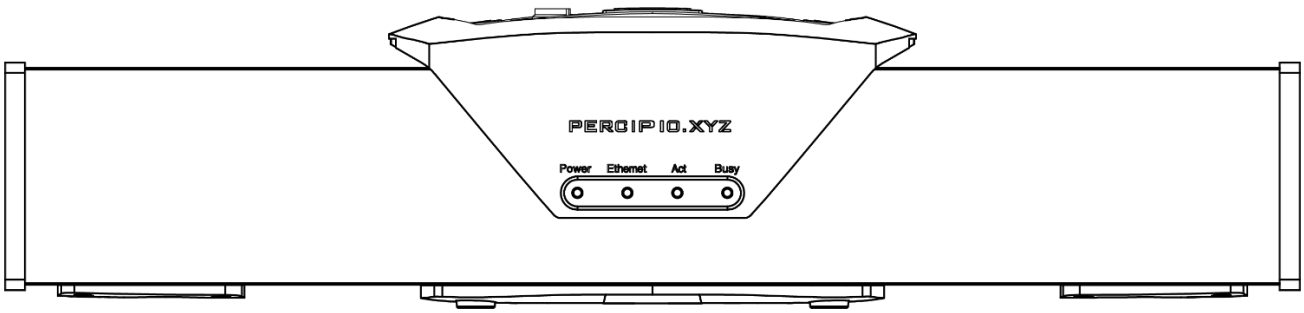


Figure 4: Indicator Lights

Table 2: Indicator Lights Descriptions

Name	Color	Descriptions
PWR (Camera Status Indicator)	Red	Flashing at 1Hz: The camera is working normally. Flashing at > 1Hz: The camera firmware has encountered an initialization error. Constantly on: The camera is currently in a system freeze state. Constantly off: The camera is either not powered on or in a system freeze state.
ETH (Network Connection Indicator)	Green	Constantly on: The camera is working in Gigabit Ethernet mode. Constantly off: The camera is not working in Gigabit Ethernet mode.
ACT (Network Transmission Indicator)	Yellow	Flashing: Data is being transmitted. Constantly on: No data is being transmitted.
BSY (Image Capture Status Indicator)	White	Flashing: The camera is capturing images. Constantly off: The camera is not capturing images.

Camera Installation

Percipio does not include a mounting bracket for the camera. When installing the camera, please choose a suitable mounting hole based on your specific requirements to secure the camera in place. For more information regarding the mounting holes, please refer to the camera's specifications for detailed dimensions or contact support@pcp3d.com for the camera's 2D/3D CAD model.

Note

The camera's casing is designed with built-in heat dissipation capabilities, so no additional cooling measures are necessary. It is recommended to ensure good ventilation around the camera and that the metal mounting surface of the camera is in contact with the equipment during installation to optimize heat dissipation.

Power Supply & Network Connection

Connection Method 1

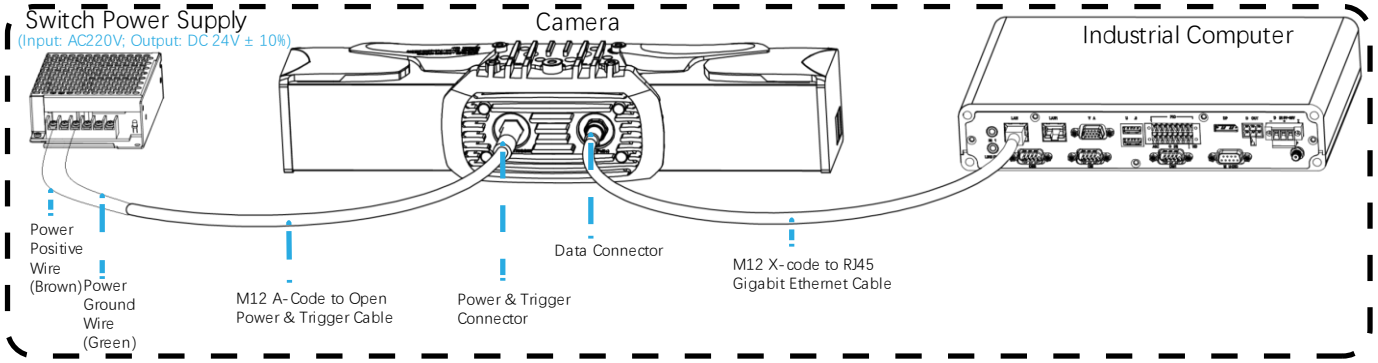


Figure 5: Connection Method 1

Note

The wire core colors indicated in the connection method figure correspond to the core colors of the cables provided by Percipio.

Network Connection

1. Connect the M12 X-Code end of the Gigabit Ethernet cable to the camera's data connector.
2. Insert the RJ45 end of the Gigabit Ethernet cable into the RJ45 network port of the industrial computer (host computer).

Network Configuration

Percipio cameras are configured with dynamic IP addresses by default, enabling them to automatically obtain an IP. If a static IP address needs to be set for the camera, the SDK or Percipio Viewer software can be utilized. For detailed instructions, please refer to the Application example: Set Camera IP and the Percipio Viewer User Guide: Set Camera IP.

Power Supply (External DC Power Supply)

The recommended specification for the external DC power supply is 24V (±10%). The connection steps are as follows:

1. Connect the M12 A-Code end of the trigger power cable to the camera's power & trigger connector.
2. Based on the pin description of the camera's power & trigger connector, connect the open end of the trigger power cable to the external DC power supply.

In the figure above, Brown Pin Number 2 (Power Positive Wire) and Green Pin Number 3 (Power Ground Wire) at the open end of the trigger power cable are connected to the external DC power supply. For the pin descriptions of the power & trigger connector, please refer to Power & Trigger Connector.

Connection Method 2

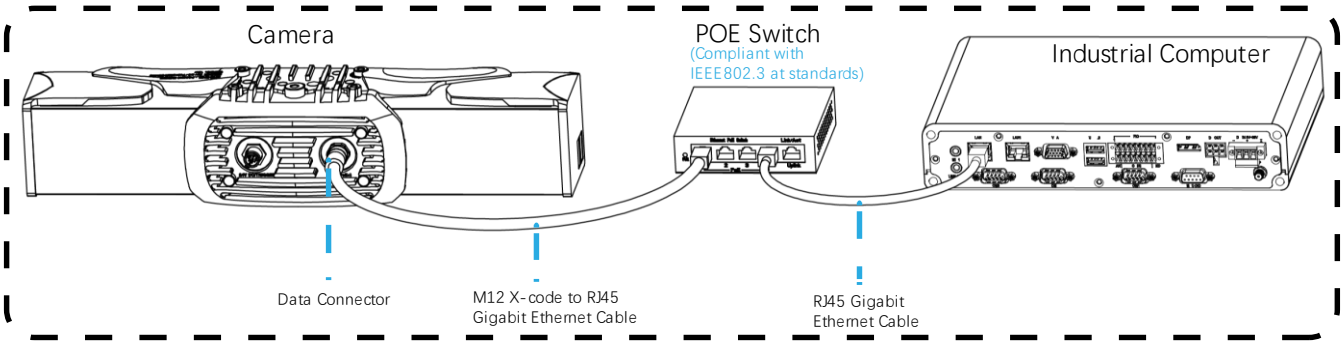


Figure 6: Connection Method 2

Network Connection

1. Connect the M12 X-Code end of the Gigabit Ethernet cable to the camera's data connector and the RJ45 end to a port on the Gigabit Ethernet switch.
2. Use another RJ45 Gigabit Ethernet cable to connect the industrial computer (host computer) to the switch.

Network Configuration

Percipio cameras are configured with dynamic IP addresses by default, enabling them to automatically obtain an IP. If a static IP address needs to be set for the camera, the SDK or Percipio Viewer software can be utilized. For detailed instructions, please refer to the Application example: Set Camera IP and the Percipio Viewer User Guide: Set Camera IP.

Power Supply (PoE Switch)

Please refer to the diagram above for connecting the camera, switch, and industrial computer (host computer). Ensure that the switch employed is a PoE switch compliant with the IEEE802.3 at standards. In this configuration, the PoE switch can both power the camera and transmit data.

Power Supply Instructions

1. For a more dependable power supply, you can additionally refer to Connection Method 1 (External DC Power Supply) to power the camera.
2. When both external DC power supply and PoE switch power supply are available, the camera will give priority to using the external DC power supply.

Hardware Trigger Connection

Hardware triggering refers to the camera operating in a hardware trigger mode, where it captures images upon receiving an external trigger signal. PM805-E1 / PM806-E1 supports falling-edge hardware trigger input/output. This section provides a reference for hardware trigger wiring.

Instructions

If hardware triggering is not required, the camera can be operated after completing the Power Supply & Network Connection and How to Run the Camera.

Hardware Trigger Requirements

1) Electrical Specifications for Hardware Triggering

Table 3: Electrical Specifications for Hardware Triggering.

Index	Minimum（V）	Typical（V）	Maximum（V）
TRIG_POWER Voltage	11.4	—	25.2
TRIG_OUT Voltage	11.4	—	25.2
TRIG_IN Voltage	11.4	—	25.2

2) External Trigger Input Signal Requirements

To avoid abnormal hardware triggering, please use external trigger input signals that meet the following requirements:

- For rising-edge trigger, a high pulse square wave signal is required, with the rising-edge being effective. The pulse width should be within the range of 10 to 30 milliseconds. To prevent false triggering, the signal rise time should not exceed 5 microseconds.
- For falling-edge trigger, a low pulse square wave signal is required, with the falling-edge being effective. The pulse width should be within the range of 10 to 30 milliseconds. To prevent false triggering, the signal fall time should not exceed 5 microseconds.
- The trigger frequency must not exceed the device's processing capability (i.e., the frame rate in continuous mode). Otherwise, the camera will discard the trigger signals without processing them.

> **Note**
>
> The wire core colors indicated in the connection method figure correspond to the core colors of the cables provided by Percipio.

Trigger Input Wiring Reference

Falling Edge

The following describes the falling-edge trigger input wiring method using an NPN (sinking) type connector as an example. The client output connector is connected to the TRIG_IN (blue) signal line, and the TRIG_OUT (white) signal line is used as needed.

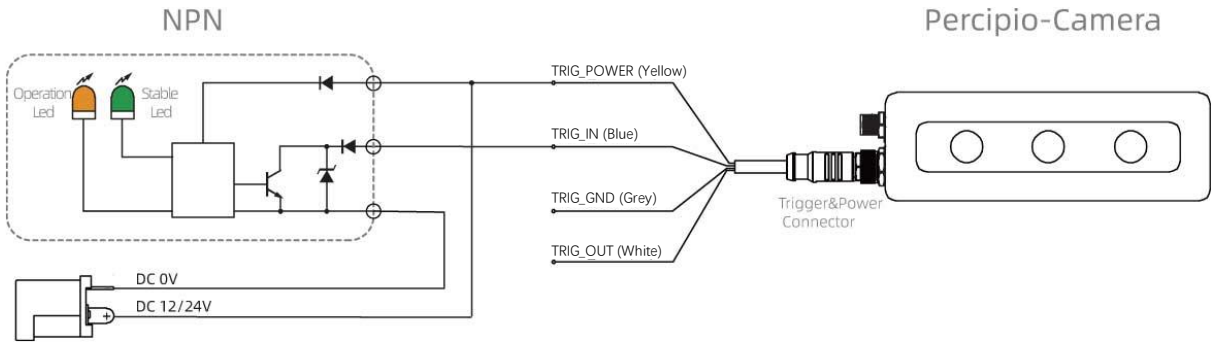


Figure 7: Falling-edge — NPN (Sinking) Type Connector Control Trigger

Trigger Output Wiring Reference

Falling edge

The camera's falling-edge trigger output signal can drive an optocoupler. A reference wiring diagram is shown below, where RL is selected based on the trigger power supply conditions.

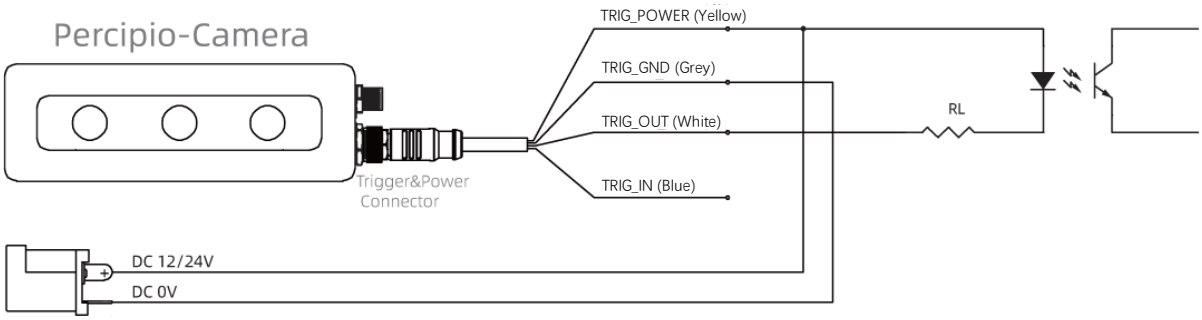


Figure 8: Falling-edge — Driving an Optocoupler

Camera Cascade Wiring Reference

Wiring reference diagram for camera cascade triggering (Master-Slave mode) is shown as follows.

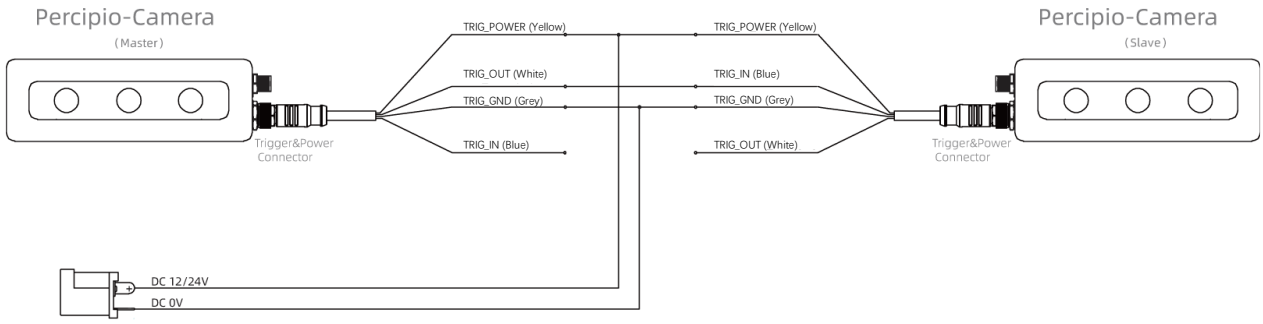


Figure 9: Camera Cascade Wiring Reference

How to Run the Camera

Users can use Percipio Viewer, a proprietary image viewing software developed by Percipio, to preview the camera's output in real-time, including depth maps, color images, infrared images, and point clouds. Additionally, users can control the camera through Percipio's SDK and a series of APIs.

Download Links:

Percipio Viewer Download Links: https://en.percipio.xyz/downloadcenter/

SDK Download Links: https://en.percipio.xyz/downloadcenter/

Tutorial Links:

Percipio Viewer User Guide: https://doc.percipio.xyz/cam/latest/en/viewer-en.html

SDK and API Documentation: https://doc.percipio.xyz/cam/latest/en/index.html

Download Center

Technical Documentations

Troubleshooting

If you encounter issues while operating the camera, you can refer to the Troubleshooting Guide to diagnose and resolve problems.

Troubleshooting Guide: https://doc.percipio.xyz/cam/latest/en/troubleshooting/index-en.html

Troubleshooting

Service and Maintenance

Service

PM805-E1 / PM806-E1 is a precision optical instrument with no user-serviceable parts inside. Do not disassemble the camera.

Maintenance (Cleaning)

Clean the exterior of the camera as follows:

- Use lint-free cloth and alcohol or water to wipe the camera window (glass panel) to keep it clean.

> **Note**
> Avoid using gasoline or other corrosive and volatile solvents to clean the camera, as these substances may damage the camera's exterior and internal structure.

- It is recommended to regularly clean the dust on the camera surface to ensure efficient heat dissipation.

Maintenance (Storage)

- Do not immerse the camera in water or place it in a high-humidity environment, as this may cause malfunction. Store the camera in a cool, dry, and well-ventilated indoor location.
- Do not leave the camera outdoors for an extended period to avoid damage from water ingress due to rain or snow.
- The storage temperature range for the camera is -10°C to 55°C. Exceeding this range may affect the camera, leading to performance degradation or damage.
- Disconnect the camera from the power supply before storage to prevent fire hazards.
- Do not point the camera lens directly at the sun or other strong light sources for an extended period to avoid damage to the image sensor from intense light.

Appendix: Specifications

PM805-E1 Specifications

Table 4:PM805-E1 Specifications

Index	Specifications
Technology Principle	Active Stereo
Working Distance	Recommended: 900 mm ~ 3500 mm Max: 800 mm ~ 4300 mm
Field of View	Near Field: 965 mm x 725 mm @ 800 mm (H/V: Approx. 62°/49°) Far Field: 4240 mm x 3840 mm @ 4300 mm (H/V: Approx. 52°/48°)
Accuracy	Z：1.88 mm @ 1500 mm XY：3.50 mm @ 1500 mm
Frame Rate @ Resolution (Depth)	0.87 fps @ 1280 x 960 0.87 fps @ 640 x 480 0.87 fps @ 320 x 240
Frame Rate @ Resolution @ Image Format (Color)	4 fps @ 2560 x 1920 @ YUYV 6 fps @ 2560 x 1920 @ CSI BAYER12GBRG 8 fps @ 1920 x 1440 @ YUYV 16 fps @ 1280 x 960 @ YUYV 25 fps @ 640 x 480 @ YUYV
Power Supply	External DC Power Supply：DC 24V (±10%) PoE Power Supply：IEEE802.3 at PoE
Dimensions (excluding ports)	388.4 mm x 85.5 mm x 89.6 mm
Weight	1.93kg
Power Consumption	6.0W ~ 16.0W
Ingress Protection	IP54
Temperature	Operating: 0 ℃ ~ 45 ℃ Storage: -10 ℃ ~ 55 ℃

PM806-E1 Specifications

Table 5: PM806-E1 Specifications

Index	Specifications
Technology Principle	Active Stereo
Working Distance	1250 mm ~ 4300 mm
Field of View	Near Field: 1520 mm x 1150 mm @ 1250 mm (H/V：约 62°/49°) Far Field: 4190 mm x 3900 mm @ 4300 mm (H/V：约 51°/48°)
Accuracy	Z：2.48 mm @ 2000 mm XY：4.57 mm @ 2000 mm
Frame Rate @ Resolution (Depth)	0.87 fps @ 1280 x 960 0.87 fps @ 640 x 480 0.87 fps @ 320 x 240
Frame Rate @ Resolution @ Image Format (Color)	4 fps @ 2560 x 1920 @ YUYV 6 fps @ 2560 x 1920 @ CSI BAYER12GBRG 8 fps @ 1920 x 1440 @ YUYV 16 fps @ 1280 x 960 @ YUYV 25 fps @ 640 x 480 @ YUYV
Power Supply	External DC Power Supply：DC 24V (±10%) PoE Power Supply：IEEE802.3 at PoE
Dimensions (excluding ports)	538.4 mm x 85.5 mm x 89.6 mm
Weight	2.2 kg
Power Consumption	6.0W ~ 16.0W
Ingress Protection	IP54
Temperature	Operating: 0 ℃ ~ 45 ℃ Storage: -10 ℃ ~ 55 ℃

Percipio.XYZ is an industry leading provider of 3D cameras. We provide a broad range of 3D camera products to meet requirements from various applications, such as industrial, automotive, inspection, logistics, medical, education, security and commercial etc. We will continue to develop and optimize our product roadmap to support more 3D vision applications.

Percipio is an independent vendor of 3D machine vision solutions. We provide products and services to system integration customers rather than end users. This marketing strategy allows us to serve multiple sectors and segments, and also means that our success will be based on our customer's success. Together with our customer's industry specific expertise, we can support end users with implementing machine intelligence, which will improve productivity and/or reduce cost.

Make 3D Machine Vision Everywhere

Contact Us

Purchase : info@percipio.xyz
Technical : support@percipio.xyz
Website : www.pcp3d.com
Documentation : https://doc.percipio.xyz/cam/latest/en/index.html

Statement

* Data mentioned in this document is subject to change without notice.
* The data mentioned in this document may vary due to environmental factors and other reasons. Percipio does not assume any consequences arising therefrom.

YouTube