

Quickstart Guide



rc_visard
rc_visard NG
English

Version 2.1, June 2024

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Notes and Warnings

This guide applies to both the original *rc_visard* and its latest version, the *rc_visard NG*. For better readability, the term *rc_visard* is used in the following, while information refers to both device types.

This guide shows how to initially connect and configure the *rc_visard*. It is not meant to provide instructions for permanent installation, on a robot, or in an industrial environment.

Before operating the *rc_visard*, please read the full manual: <https://doc.rc-visard.com/> <https://doc.rc-visard-ng.com/>

This guide assumes you have purchased the optional ConnectivityKit. Otherwise, please refer to the full manual for connection requirements.

The *rc_visard* is NOT intended for safety-critical applications.

The *rc_visard* needs to be properly mounted before use. All cables need to be secured to the robot mount.

Cables must be at most 30 m long.

Power to the *rc_visard* must be supplied through an appropriate, separate DC power source.

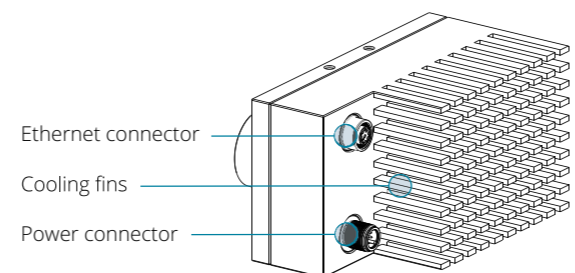
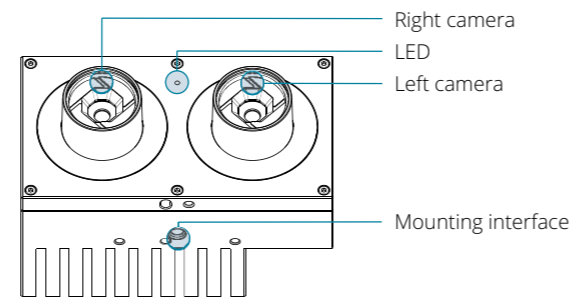
The housing of the *rc_visard* must be grounded.

The *rc_visard* and any related equipment safety guidelines must always be satisfied.

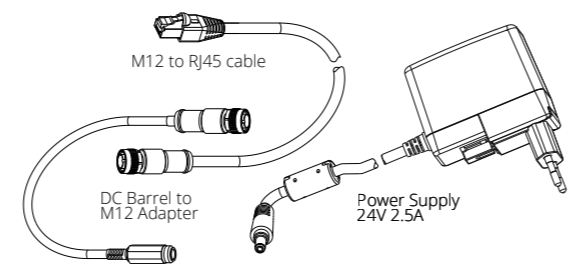
The case temperature of the *rc_visard* may exceed 60°C during operation. Please ensure that no heat-sensitive materials are near the *rc_visard*. Please use caution when touching or holding the *rc_visard* during operation.

1. Package Contents

The *rc_visard* is a 3D camera based on passive stereo vision. It provides rectified camera images, disparity images, confidence images, and error images, which enable the computation of the scene's depth values along with their uncertainties.



Optional ConnectivityKit



2. Requirements

PC with Windows 10 or Windows 11, a Chromium-based browser or Microsoft Edge* or Mozilla Firefox®, and 1-Gbit LAN connection

or

PC with Ubuntu® LTS or any other up-to-date Linux OS, a Chromium-based browser or Mozilla Firefox®, and 1-Gbit LAN connection

and

(included in ConnectivityKit)

- 24 V power supply, minimum of 60 W to support *rc_visard* and optional *rc_randomdot* projector
- Adapter cable between power supply and *rc_visard* M12 power connector
- M12 to RJ45 network cable

3. Downloads

Visit <https://www.roboception.com/resources/knowledge-base/>:

- Get the latest instruction manual online as html or downloadable as pdf
- Download the Discovery Client for your OS



4. Mounting

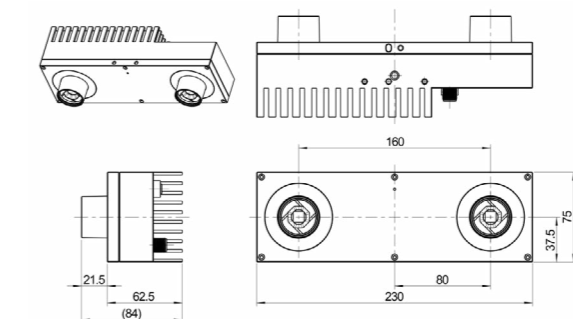
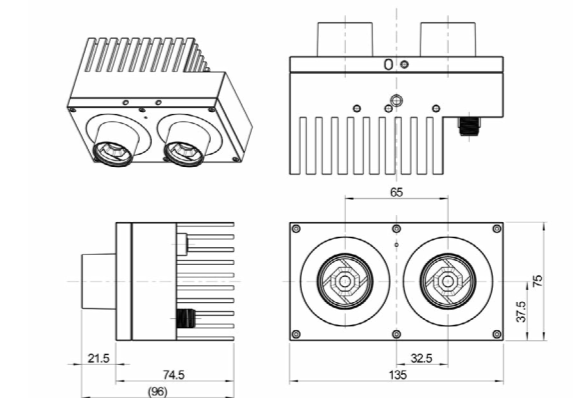
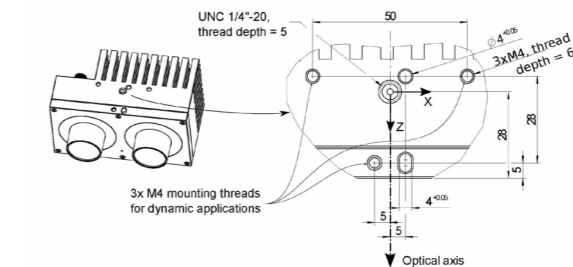
All *rc_visards* with a 160 mm baseline are intended to be mounted on a wall or ceiling above the target area. They are not intended to be used in dynamic applications mounted to a robot arm.

All *rc_visards* with a 65 mm baseline can also be used in dynamic applications mounted to a robot arm. It is the customer's responsibility to provide an adequate mounting bracket.

* Windows 10, Windows 11, and Microsoft Edge are trademarks of Microsoft Inc., registered in the U.S. and other countries.

4. Mounting (continued)

For mounting, the *rc_visard* provides an M4 thread pattern on its bottom side. A medium-strength thread-locker or Tuflok® screws must be used to protect it against vibrations. M4 screws must be tightened to 3.3 Nm.

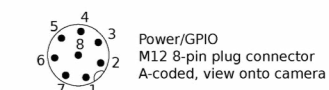
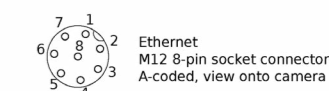


5. Camera Pin Assignments

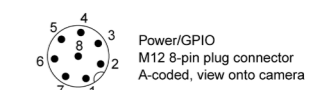
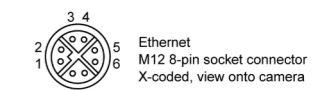
Pin #	Designation	Details
1	GPIO In 2	
2	Power +24V	2 A @ 24 V
3	GPIO In 1	12 - 24 V, 15 mA max.
4	GPIO Gnd	
5	GPIO Vcc	5 - 24 V, 50 mA max.
6	GPIO Out 1	Projector exposure signal
7	Power GND	
8	GPIO Out 2	

Pin Positions for Power and Ethernet Connector

rc_visard



rc_visard NG



6. Installation

For configuration and troubleshooting, the **rc_visard** may be mounted using the standardized tripod thread (UNC 1/4"-20).

For dynamic applications, please refer to the full manual.


The **rc_visard** offers a Gigabit Ethernet interface for connecting to a computer network. All communication to and from the device is performed via this interface. Setup is performed following the steps below.




Step 1 - Power Connection

Always fully connect and tighten the M12 power connector on the **rc_visard** before turning on the power supply. After connecting the **rc_visard** to power, the LED on the front of the device should immediately illuminate. During the boot process of the device, the LED will change color and will eventually turn green. This signals that all processes are up and running.

If the network is not plugged in, or the network is not properly configured, the LED will briefly flash red regularly. In this case, the network configuration of the device should be verified. For more information about the meanings of the LED colors, please also refer to section no. 7 of this guide.

Step 2 - Network Configuration

 81241 Munich, Germany, Made in Germany
Model: **rc_visard 65m**
S/N: 02938192 Rev: 03
MAC: 00:14:2D:2C:D5:50
Power: 18-30V dc 24W
FCC ID: 2AVMTRCV17 CAN ICES-3(B)/NMB-3(B)
3.60.102.300/0000
Sense. Reason. Act.



The **rc_visard** requires an Internet Protocol (IP) address for communication with other network devices. The IP address must be unique in the local network, and can be set automatically or manually.

Step 2 (continued)

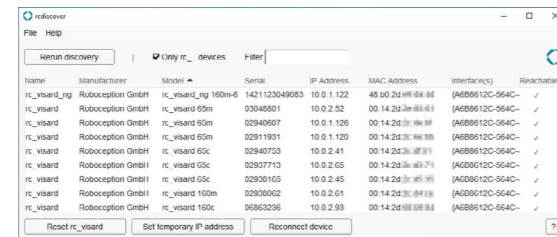
Automatic Configuration via DHCP

The DHCP (Dynamic Host Configuration Protocol) is the preferred way of setting an IP address, which is the factory default on the **rc_visard**. It tries to contact a DHCP server at startup and every time the network cable is plugged in. If a DHCP server is available on the network, then the IP address is automatically configured. In some networks the DHCP server is configured to only accept known devices. In this case, the MAC (Media Access Control) address, which is printed on the sensor, needs to be configured in the DHCP server. The **rc_visard** host name, which is also printed on the device, can be set in the Domain Name Server (DNS). Both, MAC address and host name should be sent to the network administrator for configuration.

Automatic Configuration via Link-Local

If the **rc_visard** cannot contact a DHCP server for about 15 seconds after startup, or after plugging in the network cable, it will try to assign itself a unique IP address. This is called Link-Local. This option is especially useful for connecting the **rc_visard** directly to a computer. The computer must be configured to Link-Local as well. Link-Local might already be configured as a standard fallback option. If you are using Windows you can continue directly with **Step 3 - rcdiscover-gui Tool**. Other operating systems, such as Linux, require Link-Local to be explicitly configured in their network manager.

Step 3 - rcdiscover-gui Tool



Step 3 (continued)

All smart Roboception devices that are powered up and connected to the local network or directly to a computer can be found using the standard GigE Vision® discovery mechanism.

Roboception offers the tool **rcdiscover-gui**, which can be downloaded free of charge from <https://roboception.com/resources/knowledge-base/> for Windows as single executable* and for Ubuntu as Debian package**.

At startup, all available devices are listed with their names, serial numbers, current IP addresses, and unique MAC addresses.

After successful discovery, a double click on the device row opens the Web GUI of the **rc_visard** in the default web browser of the operating system. Please check the browser requirements.

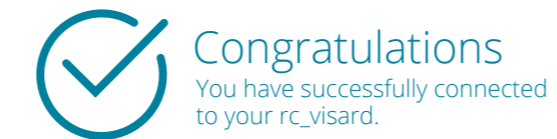
Alternatively, some network environments automatically configure the unique host name of the **rc_visard** in their DNS (Domain Name Server). In this case, the Web GUI can also be accessed directly using the URL:

<http://rc-visard-<serial-number>>
<http://rc-visard-ng-<serial-number>>

by replacing **<serial-number>** with the serial number printed on the device. For Linux, this even works without DNS via the multicast Domain Name System (mDNS), which is automatically used if **.local** is appended to the host name. Thus, the URL simply becomes:

<http://rc-visard-<serial-number>.local>
<http://rc-visard-ng-<serial-number>.local>


The overview page of the Web GUI gives the most important information of the on-board processing.



* In Windows, Smart Screen Defender will be triggered when starting the tool for the first time. Please allow execution by clicking on 'More info', confirm that the issuer is Roboception GmbH, and then click 'Run Anyway'.
** In Ubuntu you will be prompted whether to disable Reverse Path Filtering. With filtering turned on, you will not be able to discover your device in subnets other than the current one.

Step 4 - Web GUI

The Web GUI of the **rc_visard** is a web-based user interface for testing, calibration and configuration.

Full *Documentation* can be accessed through the button  in the top right corner of the Web GUI, or as HTML or PDF for download from the Roboception web page <https://roboception.com/resources/knowledge-base/>.

7. Troubleshooting

LED Colors

During the boot process, the LED will change color several times to indicate stages in the startup process:

LED color	Boot stage
White	Power supply OK
Yellow → Purple → Blue	Normal boot process in progress

The LED will also signal some warning or error states to support the user during troubleshooting. For detailed information, please consult the full manual.

LED color	Warning or error state
Off	No power to the sensor
Green with brief red flash every 5 seconds	No network connectivity
Green with longer red flash	A process terminated and fails to restart
Red while sensor appears to function normally	Temperature warning (case exceeds 60 °C)

For more information about troubleshooting, please go to <https://doc.rc-visard.com/latest/en/troubleshooting.html>.

8. Support

Our dedicated support team is available to provide timely and expert guidance to ensure a smooth integration process and optimal performance. We prioritize your success and are committed to helping you overcome any challenges. Please do not hesitate to get in touch in case of questions.

For further support issues, please refer to

<http://www.roboception.com/support>

or email support@roboception.de

or phone +49 (0) 89 889 50 79-0 (phone support during CET business hours only)

For additional information and access to software and firmware releases, please register in our Customer Area:



<https://download.roboception.com/>

9. Conformity

The **rc_visard** has been designed and tested to be in compliance with the following standards:

AS/NZS CISPR32:2015, CISPR 32:2015, GB 9254:2008, CISPR 24:2015+A1:2015, EN 50581:2012, EN 55032:2015, EN 55024:2010+A1:2015, EN 61000-6-2:2005, EN 61000-6-3:2007+A1:2011, registered FCC ID: 2AVMTRCV17, certified for Canada according to CAN ICES-3(B)/NMB-3(B)



9. Conformity (continued)

The **rc_visard NG** has been designed and tested to be in compliance with the following standards:

EN 55032:2015 / A11:2020, EN 55035:2017, EN 61000-3-2:2014 / IEC 61000-3-2:2018, EN 61000-3-3:2013 / IEC 61000-3-3:2013+AMD1:2017, EN IEC 61000-6-1:2019 / IEC 61000-6-1:2016, EN 61000-6-2:2005 / AC:2005 / IEC 61000-6-2:2016, EN IEC 61000-6-3:2021 / IEC 61000-6-3:2020, EN 61000-6-4:2007 / A1:2011 / IEC 61000-6-4:2018, compliant with FCC 47 CFR Part 15B and ICES-003:2021 and 2020, EN IEC 63000:2018 / IEC 63000:2016, IP54 according to DIN EN 60529: 2014-09+AMD1:2017-02+AMD2:2019-06



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