roboception

Quickstart Guide



rc_visard rc_visard NG English

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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



or

and

knowledge-base/:

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.

ting bracket.

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

2. Requirements

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

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

(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 RI45 network cable

3. Downloads

Visit https://www.roboception.com/resources/

 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 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 moun-

4. Mounting (continued)

For mounting, the rc visard provides an M4 thread pattern on its bottom side. A medium-strength threadlocker 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



Ethernet M12 8-pin socket connector A-coded, view onto camera



Power/GPIO M12 8-pin plug connector A-coded, view onto camera

rc visard NG



Ethernet M12 8-pin socket connector X-coded, view onto camera



Power/GPIO M12 8-pin plug connector A-coded, view onto camera

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



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

C rediscover						-	
File Help							
Rerun dis	covery	Only rc_ devices	Filter				0
Name	Manufacturer	Model -	Serial	IP Address	MAC Address	Interface(s)	Reachable
rc_visard_ng	Roboception GmbH	rc_visard_ng 160m-6	1421123049083	10.0.1.122	48.b0.2d ## dis did	(A6B8612C-564C-	
rc_visard	Roboception GmbH	rc_visard 65m	03048801	10.0.2.52	00.14.2d [im iii] iii i	(A6B8612C-564C-	1
rc_visard	Roboception GmbH	rc_visard 65m	02940607	10.0.1.126	00:14:2d in the hit	(A6B8612C-564C-	5
rc_visard	Roboception GmbH	rc_visard 65m	02911931	10.0.1.120	00:14:2d:3: ## 16	(A6B8612C-564C-	1
rc visard	Roboception GmbH	rc_visard 65c	02940753	10.0.2.41	00:14:2d	(A6B8612C-564C-	
rc visard	Roboception GmbH	rc_visard 65c	02937713	10.0.2.65	00.14.2d In mil."	(A6B8612C-564C-	
rc_visard	Roboception GmbH	rc_visard 65c	02938165	10.0.2.45	00:14:2d in mim	(A6B8612C-564C-	
rc_visard	Roboception GmbH	rc_visard 160m	02938062	10.0.2.61	00.14.2d 3	(A6B8612C-564C-	· ·
rc_visard	Roboception GmbH	rc_visard 160c	06863236	10.0.2.93	00.14.2d	(A6B8612C-564C-	
Reset n	_visard Sc	t temporary IP address	Reconnec	t device			?

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.

ongratulations You have successfully connected to your rc visard.

* 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.

LED co White

Yellow -

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 co Off

Green flash e Green red flas

Red wh

appear normal

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

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:

olor	Boot stage
	Power supply OK
\rightarrow Purple \rightarrow Blue	Normal boot process in progress

Warning or error state
No power to the sensor
No network connectivity
A process terminated and fails to restart
Temperature warning (case exceeds 60 °C)

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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() roboception Sense. Reason. Act.