

MVCxxxx

Machine Vision Controller



Operating Instructions

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1. General

1.1 Information Concerning these Instructions

- These instructions apply to the products Machine Vision Controller MVCxxxx
- They make it possible to use the product safely and efficiently
- These instructions are an integral part of the product and must be kept on hand for the entire duration of its service life.
- Local accident prevention regulations and national work safety regulations must be complied with as well.
- The product is subject to further technical development, and thus the information contained in these operating instructions may also be subject to change. The current version can be found at www.wenglor.com in the product's separate download area.



NOTE!

The operating instructions must be read carefully before using the product and must be kept on hand for later reference.

1.2 Explanations of Symbols

- Safety precautions and warnings are emphasized by means of symbols and attention-getting words.
- Safe use of the product is only possible if these safety precautions and warnings are adhered to.

The safety precautions and warnings are laid out in accordance with the following principle:



ATTENTION-GETTING WORD!

Type and Source of Danger!

Possible consequences in the event that the hazard is disregarded.

- Measures for averting the hazard.
-

The meanings of the attention-getting words, as well as the scope of the associated hazards, are listed below.



DANGER!

This word indicates a hazard with a high degree of risk which, if not avoided, results in death or severe injury.



WARNING!

This word indicates a hazard with a medium degree of risk which, if not avoided, may result in death or severe injury.



CAUTION!

This word indicates a hazard with a low degree of risk which, if not avoided, may result in minor or moderate injury.



ATTENTION!

This word draws attention to a potentially hazardous situation which, if not avoided, may result in property damage.



NOTE!

A note draws attention to useful tips and suggestions, as well as information regarding efficient, error-free use.

1.3 Limitation of Liability

- The product has been developed taking into account the state of the art as well as the applicable standards and guidelines.
- We reserve the right to make technical changes.
- A valid declaration of conformity can be found at www.wenglor.com in the download area of the product.
- wenglor sensoric elektronische Geräte GmbH (hereinafter „wenglor“) accepts no liability for:
 - » Failure to observe the operating manual,
 - » Unsuitable or improper use of the product,
 - » Excessive use, incorrect or negligent treatment of the product,
 - » Incorrect installation or commissioning,
 - » Use of untrained personnel,
 - » Use of unauthorized spare parts or
 - » Improper or unauthorized changes, modifications or repair work to the products.
- This operating manual does not contain any guarantees/warranties from wenglor with regard to the processes described or certain product properties.
- wenglor assumes no liability with regard to printing errors or other inaccuracies contained in this operating manual, unless it can be proven that wenglor was aware of the errors at the time the operating manual was created.

1.4 Copyrights

- The contents of these instructions are protected by copyright law.
- All rights are reserved by wenglor.
- Commercial reproduction or any other commercial use of the provided content and information, in particular graphics and images, is not permitted without previous written consent from wenglor.

2. For Your Safety

2.1 Use for Intended Purpose

The Machine Vision Controller receives data from the imaging devices (e.g. Machine Vision Cameras or 2D/3D Profile Sensors) via an Ethernet interface, evaluates the data and sends out results via various interfaces. The Machine Vision Controller's compact housing is cooled passively without a fan.

This product can be used in the following industry sectors:

- Special machinery manufacturing
- Heavy machinery manufacturing
- Logistics
- Automotive industry
- Food industry
- Packaging industry
- Pharmaceuticals industry
- Plastics industry
- Woodworking industry
- Consumer goods industry
- Paper industry
- Electronics industry
- Glass industry
- Steel industry
- Aviation industry
- Chemicals industry
- Alternative energy
- Raw materials extraction

2.2 Use for Other than the Intended Purpose

- Not a safety component in accordance with 2006/42/EU (Machinery Directive)
- The product is not suitable for use in potentially explosive atmospheres.
- The product may only be used with accessories supplied or approved by wenglor, or combined with approved products. A list of approved accessories and combination products can be accessed at www.wenglor.com on the product detail page.



DANGER!

Risk of personal injury or property damage in case of use for other than the intended purpose!

Use for other than the intended purpose may lead to hazardous situations.

- Observe instructions regarding use for intended purpose.
-

2.3 Personnel Qualifications

- Suitable technical training is a prerequisite.
- In-house electronics training is required.
- Trained personnel who use the product must have uninterrupted access to the operating instructions.



DANGER!

Risk of personal injury or property damage in case of incorrect initial start-up and maintenance!

Personal injury and damage to equipment may occur.

- Adequate training and qualification of personnel.
-

2.4 Modification of Products



CAUTION!

Risk of personal injury or property damage if the product is modified!

Personal injury and damage to equipment may occur. Non-observance may result in loss of the CE marking and the guarantee may be rendered null and void.

- Modification of the product is impermissible.
 - Unauthorized opening of the device is not permitted.
-

2.5 General Safety Precautions



CAUTION!

Risk of personal injury or property damage due to hot surfaces!

Danger of burns if the Machine Vision Controller's cooling fins are touched.

- Avoid touching the cooling fins.
-



NOTE!

- These instructions are an integral part of the product and must be kept on hand for the entire duration of its service life
- In the event of possible changes, the respectively current version of the operating instructions can be accessed at www.wenglor.com in the product's separate download area.
- Read the operating instructions carefully before using the product
- Protect the product against contamination and mechanical influences

2.6 Approvals and protection class



3. Technical Data

3.1 Machine Vision Controller with Digital In-/Output

Order No	MVCM001	MVCE001	MVCP001	MVCV001
Technical Data				
Electrical Data				
Supply Voltage	9...48 V DC			
Current consumption (U _b = 24 V)	< 5 A			
Temperature range	0...45 °C			
Number of USB 2.0 ports	2			
Number of USB 3.0 ports	6			
Number of CAM ports RJ45	4			
Number of RTE ports RJ45	---			
Number of LAN ports RJ45	2			
Number of DisplayPort interfaces	2			
Number of VGA ports	1			
Number of PS/2 ports	1			
Number of HDMI ports	1			
Industry protocols	---			
General protocols	Ethernet TCP/IP, FTP, UDP			
Mechanical Data				
Housing	Aluminium, anodised			
Weight	5 kg			
Degree of Protection	IP40			
Wall Mount	yes			
General Data				
Software	uniVision	uniVision Extended	uniVision Script	uniVision Robotics
Processor	Intel Core i7			
Cycle rate	4,4 GHz			
RAM	16 GB			
Hard disk	128 GB SSD			



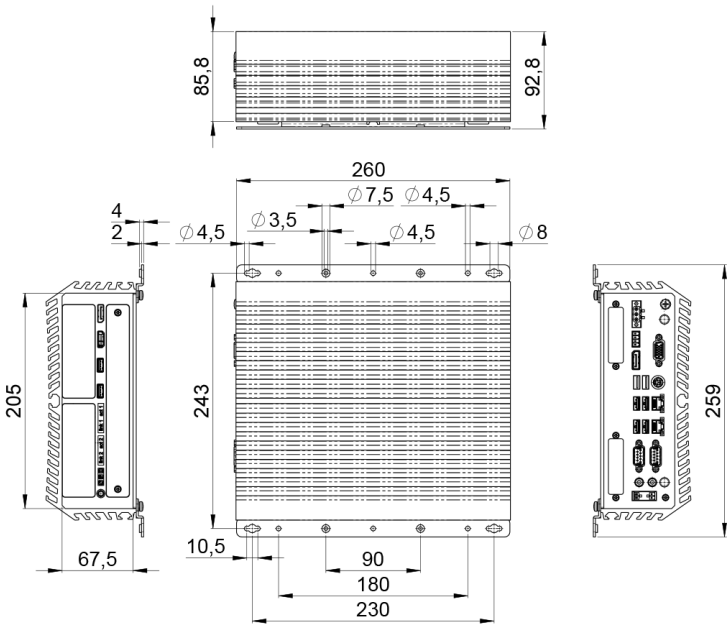
NOTE!

Switching outputs and digital inputs are galvanically isolated, output NPN.

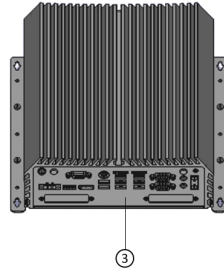
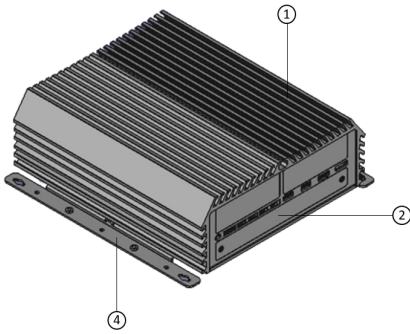
3.2 Machine Vision Controller with Real Time Ethernet

Order No	MVCM101	MVCE101	MVCP101
Technical Data			
Electrical Data			
Supply Voltage	9...48 V DC		
Current consumption (U _b = 24 V)	< 5 A		
Temperature range	0...45 °C		
Number of USB 2.0 ports	2		
Number of USB 3.0 ports	6		
Number of CAM ports RJ45	4		
Number of RTE ports RJ45	2		
Number of LAN ports RJ45	2		
Number of DisplayPort interfaces	2		
Number of VGA ports	1		
Number of PS/2 ports	1		
Number of HDMI ports	1		
Industry protocols	Profinet IO, CC-C, EtherNet/IP, EtherCAT		
General protocols	Ethernet TCP/IP, FTP, UDP		
Mechanical Data			
Housing	Aluminium, anodised		
Weight	5 kg		
Degree of Protection	IP40		
Wall Mount	yes		
General Data			
Software	uniVision	uniVision Extended	uniVision Script
Processor	Intel Core i7		
Cycle rate	4,4 GHz		
RAM	16 GB		
Hard disk	128 GB SSD		

3.3 Dimensional Drawings



3.4 Layout



- ① = Cooling fins
- ② = Back panel with interfaces
- ③ = Front panel with interfaces
- ④ = Wall mounting system

3.5 Scope of Delivery

- Machine Vision Controller
- Mounting kit for wall mounting
- 1 x Phoenix plug 3-pin for power supply
- 2 x Phoenix plug for digital input/output

4. Transport and Storage

4.1 Transport

Upon receipt of shipment, inspect the goods for damage in transit. In the case of damage, conditionally accept the package and notify the manufacturer of the damage. Then return the device making reference to damage in transit.

4.2 Storage

The following points must be taken into condition with regard to storage:

- Do not store the product outdoors.
- Store the product in a dry, dust-free place.
- Protect the product against mechanical impacts.
- Protect the product against exposure to direct sunlight.



ATTENTION:

Risk of property damage in case of improper storage!

The product may be damaged.

- Comply with storage instructions.
-

5. Installation and Electrical Connection

5.1 System Overview

5.1.1 2D/3D Profile Sensors

Connectable 2D/3D Profile Sensors are listed on our website in the respective product category. Accessories for 2D/3D Profile Sensors are also listed on the product page of the respective sensor.

5.1.2 Machine Vision Cameras and Accessories

Connectable Machine Vision Cameras are listed on our website in the respective product category. Accessories for each Machine Vision Camera are also listed on the respective product pages.

5.1.3 Software

DNNF024	wenglor weHub	Software for network configuration of LAN connector at MVC
DNNF023	uniVision 3 for Windows	Configurable standard software for Windows

5.1.4 Complementary Accessories

ZNNG026	Monitor with 230 V connector cable, DisplayPort cable
Z0044	Key Pad

5.2 Installation

- Protect the product from contamination during installation.
- Observe all applicable electrical and mechanical regulations, standards, and safety rules
- Protect the product against mechanical influences.
- Make sure that the product is mounted in a mechanically secure fashion.
- Ensure adequate open space around the cooling fins in order to permit effective heat exchange between the Machine Vision Controller and the environment.



NOTE!

Sources of electromagnetic interference in direct proximity to the device may cause malfunctioning.

- Position the device at an adequate distance from sources of interference.
- It's advisable to mount the device inside the control cabinet.



ATTENTION!

Risk of property damage in case of improper installation!

The product may be damaged.

- Comply with installation instructions.



CAUTION!

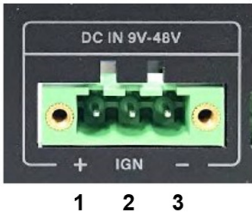
Risk of personal injury or property damage during installation!

Personal injury and damage to the product may occur.

- Ensure a safe installation environment.

5.3 Electrical Connection

- Connect the product to 9 to 48 V DC.



Pin	Description
1	9...48 V DC
2	Ignition (IGN)
3	Ground (GND)



NOTE!

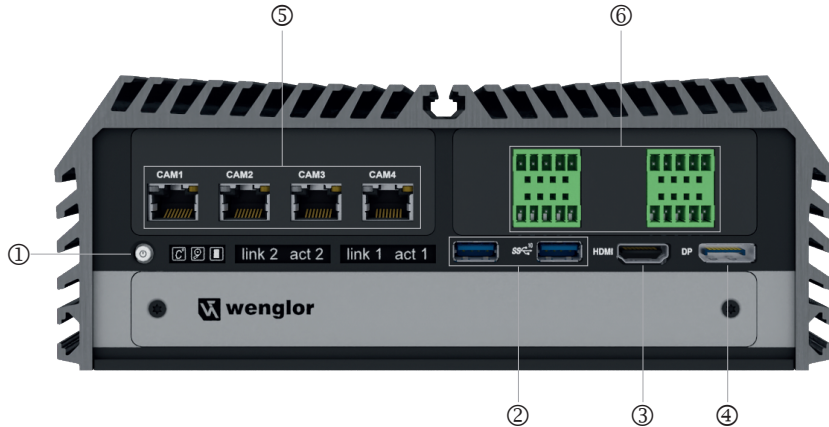
Use a 24 V/5 A power supply or higher to ensure that the Machine Vision Controller has a sufficient power supply.

An insufficient power supply could cause to an automatic restart of the device.

5.4 Interfaces

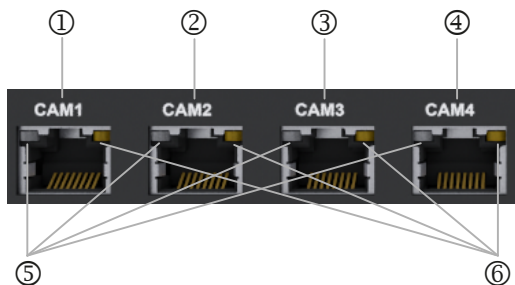
5.4.1 MVCx001

5.4.1.1 Front Panel



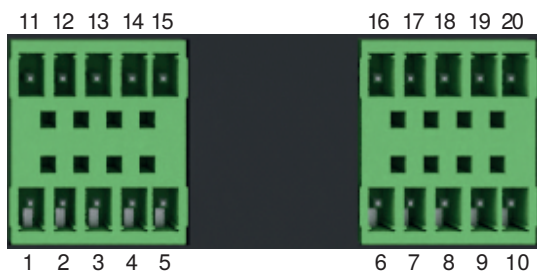
No.	Description	Explanation
1	Button	On/off button (connected to a 24 V power supply, the device starts automatically)
2	USB 3.0	Two USB 3.0 ports for mouse, keyboard, external hard disk etc.
3	HDMI	HDMI port for monitor
4	Displayport	Displayport socket connector for monitor
5	Network interfaces	Gigabit Ethernet RJ45 ports for devices, cameras and 2D/3D Profile Sensors
6	Digital inputs/outputs	8 optically isolated inputs and 8 optically isolated outputs

5.4.1.2 Gigabit Ethernet Connectors



No.	Description	Color	State	Meaning
1	CAM1			
2	CAM2			
3	CAM3			
4	CAM4			
5	LINK	Green	On	1000 MBit Network Link
		Orange	On	100 MBit Network Link
		Off	Off	10 MBit Network Link
6	ACT	Yellow	Flashing	Data activity
		Yellow	On	No activity

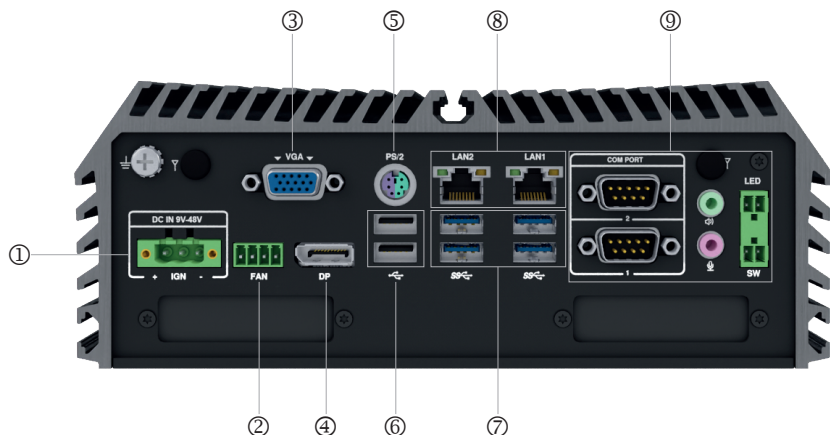
5.4.1.3 Digital Inputs and Outputs (DIO)



Pin	Function	Pin	Function	Pin	Function	Pin	Function
1	Digital input 1	6	Digital input 5	11	Digital output 1	16	Digital output 5
2	Digital input 2	7	Digital input 6	12	Digital output 2	17	Digital output 6
3	Digital input 3	8	Digital input 7	13	Digital output 3	18	Digital output 7
4	Digital input 4	9	Digital input 8	14	Digital output 4	19	Digital output 8
5	XCOM+ (DC INPUT)	10	2XCOM+ (DC INPUT)	15	XCOM- (GND)	20	2XCOM- (GND)

**NOTE!**

The digital inputs and outputs of the MVC operate according to the NPN switching principle (current-reducing). Adaptation to PNP is possible with standard industrial PNP converters.

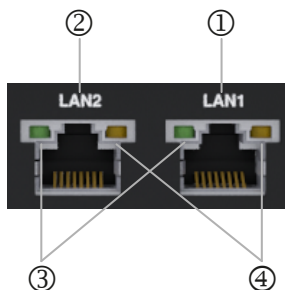
5.4.1.4 Back Panel

No.	Description	Explanation
1	Voltage supply	9...48 V DC
2	FAN	Not supported
3	VGA	VGA socket connector for monitor
4	Displayport	Displayport socket connector for monitor
5	PS/2	One PS/2 port for mouse or keyboard
6	USB 2.0	Two USB 2.0 ports for mouse, keyboard, external hard disk etc.
7	USB 3.0	Four USB 3.0 ports for mouse, keyboard, external hard disk etc.
8	Network interfaces	10/100/1000 MBit network interface
9	Microphone, LED, SW	Not supported

**NOTE!**

Connecting the monitor via VGA, the monitor must be connected to the MVC before the Machine Vision Controller is booted. Otherwise, the monitor may not be found by the device.

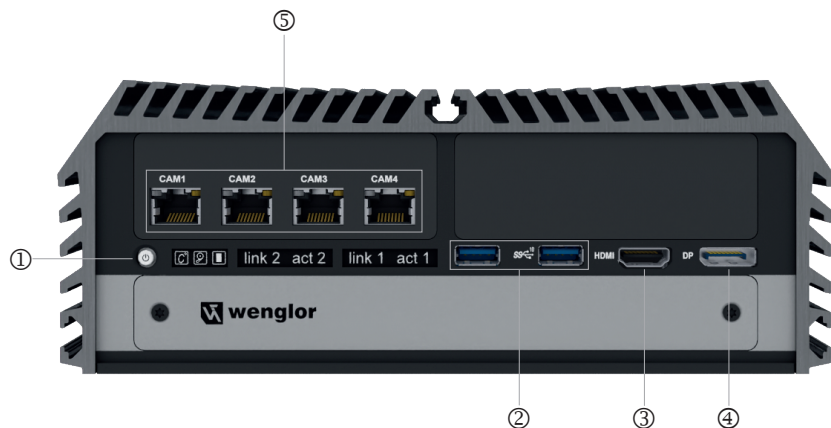
5.4.1.5 Network Interfaces



No.	Description	Color	State	Meaning
1	LAN1			
2	LAN2			
3	LINK	Green	On	1000 MBit Network Link
		Orange	On	100 MBit Network Link
		Off	Off	10 MBit Network Link
4	ACT	Yellow	Flashing	Data activity
		Yellow	On	No activity

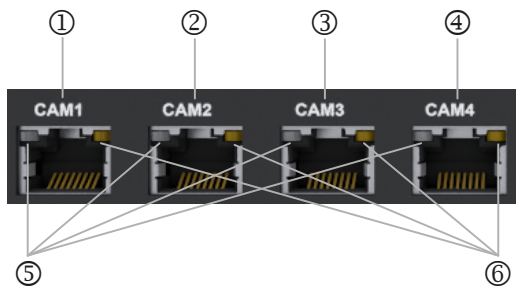
5.4.2 MVCx101

5.4.2.1 Front Panel



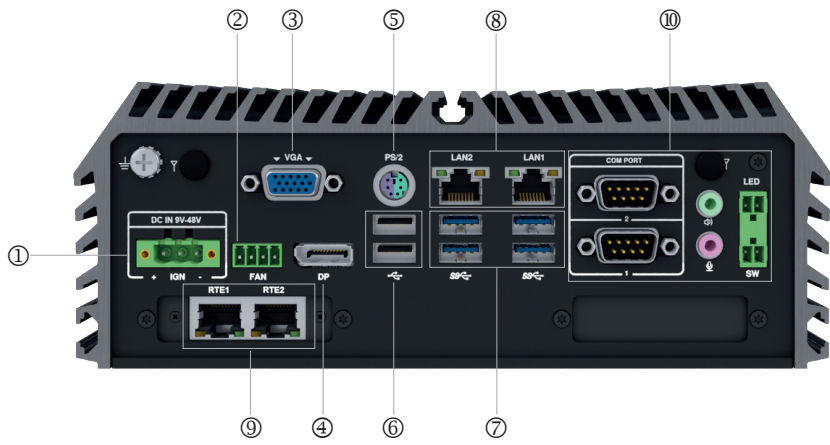
No.	Description	Explanation
1	Button	On/off button
2	USB 3.0	Two USB 3.0 ports for mouse, keyboard, external hard disk etc.
3	HDMI	HDMI port for monitor
4	Displayport	Displayport socket connector for monitor
5	Network interfaces	Gigabit Ethernet RJ45 ports for devices, cameras and 2D/3D Profile Sensors

5.4.2.2 Gigabit Ethernet Connectors



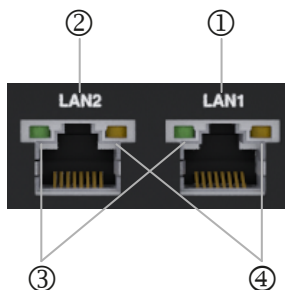
No.	Description	Color	State	Meaning
1	CAM1			
2	CAM2			
3	CAM3			
4	CAM4			
5	LINK	Green	On	1000 MBit Network Link
		Orange	On	100 MBit Network Link
		Off	Off	10 MBit Network Link
6	ACT	Yellow	Flashing	Data activity
		Yellow	On	No activity

5.4.2.3 Back Panel



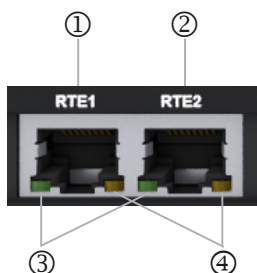
No.	Description	Explanation
1	Voltage supply	9...48 V DC
2	FAN	Not supported
3	VGA	VGA socket connector for monitor
4	Displayport	Displayport socket connector for monitor
5	PS/2	One PS/2 port for mouse or keyboard
6	USB 2.0	Two USB 2.0 ports for mouse, keyboard, external hard disk etc.
7	USB 3.0	Four USB 3.0 ports for mouse, keyboard, external hard disk etc.
8	Network interfaces	10/100/1000 MBit network interface
9	Real Time Ethernet (Profinet, EtherNet/IP, EtherCAT)	Two ports for Real Time Ethernet (PROFINET, EtherNet/IP, EtherCAT)
10	COM, Audio, Microphone, LED, SW	Not supported

5.4.2.4 Network Interface Connectors



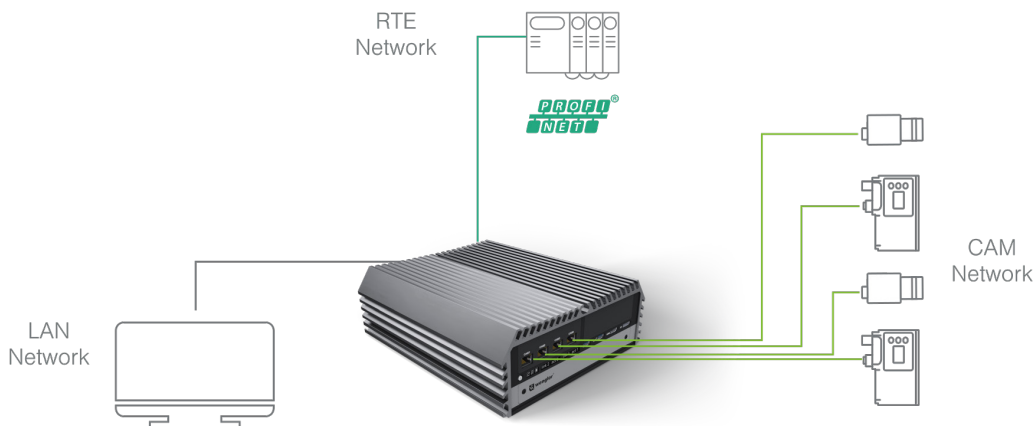
No.	Description	Color	State	Meaning
1	LAN1			
2	LAN2			
5	LINK	Green	On	1000 MBit Network Link
		Orange	On	100 MBit Network Link
		Off	Off	10 MBit Network Link
6	ACT	Yellow	Flashing	Data activity
		Yellow	On	No activity

5.4.2.5 Real Time Ethernet Connectors



No.	Description	Color	State	Meaning
1	RTE1			
2	RTE2			
5	LINK	Green	On	Ethernet connection is available
		Off	Off	No Ethernet connection is available
6	ACT or RX/TX	Yellow	Flashing	Machine Vision Controller sends or receives Ethernet frames
		Off	Off	Machine Vision Controller sends or receives no Ethernet frames

5.5 Connection Options



Separate, completely isolated networks significantly reduce the risk of data collisions and conflicts, for example between the uniVision software and the transmitted camera data.

Depending on the model, the MVCx001 (with digital inputs and outputs) offers two physically separate networks, and the MVCx101 (with RTE network) offers three. This separation ensures reliable, interference-free transmission, especially for time-critical image or profile data for further processing in the controller.

- CAM Network: Up to four different devices can be operated simultaneously at 1 Gbit/s each on the MVC via the four isolated CAM ports on the front. With the help of a network switch, up to 16 devices can even be connected simultaneously.
- LAN Network: Standalone LAN network via two RJ45 connections – ideal for connecting to other networks such as robots, laptops, or PCs.
- RTE Network: Separate RTE network via two RJ45 ports on the rear for communication with a PLC via PROFINET, EtherNet/IP™, or EtherCAT.

6. Operating System weOS

weOS is a linux-based operating system specially developed for the tasks of the Machine Vision Controller MVC for industrial applications and it is working with the wenglor uniVision software. With the right accessories such as a monitor, mouse and key pad, you can work on the MVC via the user interface. Find the accessories under point „5.1.4 Complementary Accessories“. The interfaces for the correct connection can be found under „5.4 Interfaces“.



NOTE!

Connecting the monitor via VGA, the monitor must be connected to the MVC before the Machine Vision Controller is booted. Otherwise, the monitor may not be found by the device.

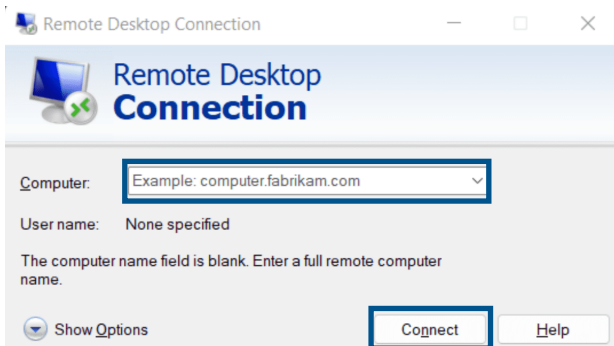
192.168.100.1

It is also possible to establish a connection to the MVC with a laptop via “Remote Desktop” „6.1 Connection with Remote Desktop“.

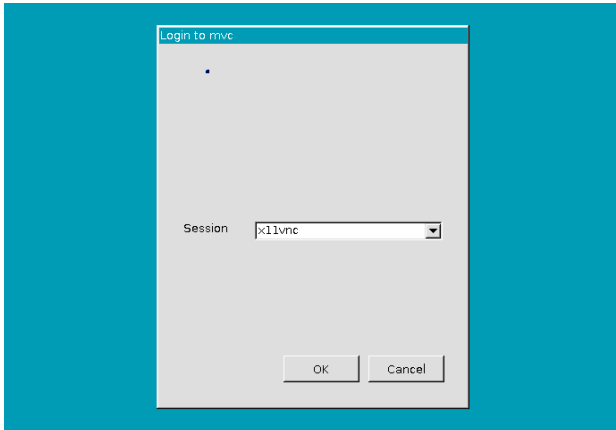
An additional way to connect to the Machine Vision Controller and uniVision is via the Device website „9. Device Website“.

6.1 Connection with Remote Desktop

Connect your Laptop via Ethernet cable to the MVC (LAN Ports). Open Remote Desktop on your laptop using the IP address of the MVC and click connect. Default IP address: 192.168.100.1



A new window will appear, allowing you to connect directly to the desktop version of the Machine Vision Controller.



NOTE!

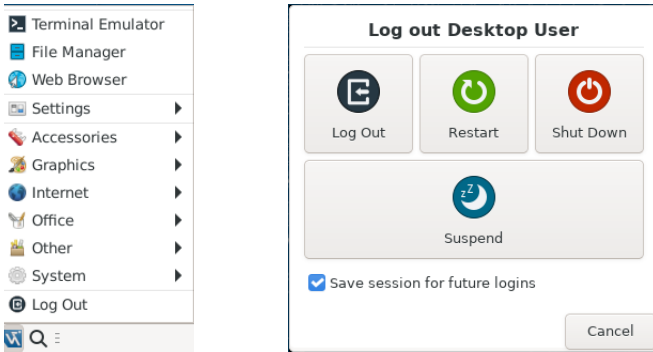
The remote desktop connection is enabled by default, but can be secured with a user name and password.

6.2 Desktop MVC

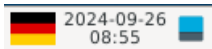
On the Machine Vision Controller MVC are some basic features as on every standard PC.



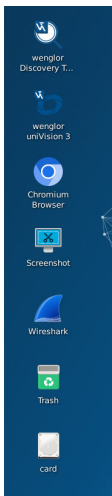
1. Under the start button you will find common apps such as the Internet, web browser, file management, system settings and a logout button.



2. Settings for language, time and date can be easily changed in the toolbar



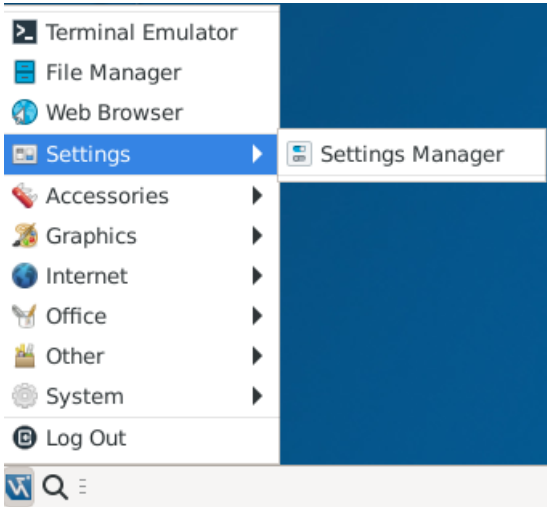
The icons of the most important applications can already be found on the desktop. This allows all the necessary functions of the Machine Vision Controller to be operated.



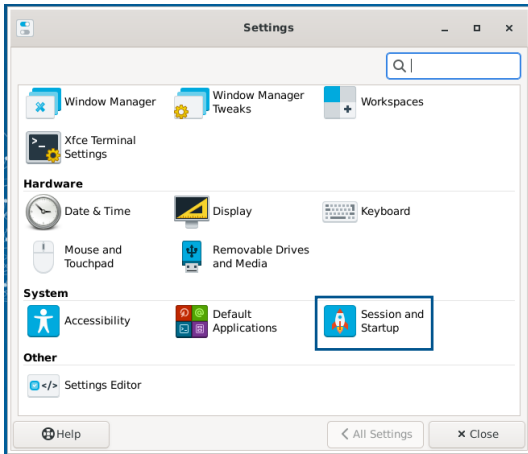
6.3 Setting up Automatic Program Start

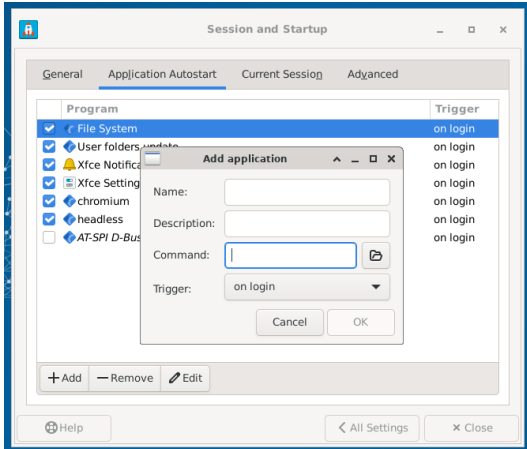
To start a program automatically when the system boots up, configure the desired program in the MVC's autostart settings.

You can find the "Setting Manager" under "Settings" on the start screen.



In the Setting Manager, you can easily add and remove programs for autostart under "Session and Startup" in the Application Autostart section.





Select the desired program and activate the option for automatic program start when the device starts up.

7. Software

The Machine Vision Controller is equipped with preinstalled software as a standard feature. Information and explanations concerning individual software solutions can be found on the respective software product page on the Internet: [Software_uniVision](#).

8. Software wenglor weHub

The software wenglor weHub can be installed on any Windows 10 (22H2) and 11 (22H2) PC for finding Machine Vision Controllers that are connected via the LAN Ethernet connectors of the MVC, for setting up the LAN Ethernet configuration of the MVC and for accessing the device website of the MVC. The software is also available on the MVC to find the MVC itself (e.g. if the IP address of LAN is unknown when a monitor is connected to the MVC) and to find other Machine Vision Devices that are connected via the LAN Ethernet connectors of the MVC. For more information, see:

<https://www.wenglor.com/p/DNNF024>

9. Device Website

Access the device website via entering directly the IP address of the LAN Ethernet adapter of the Machine Vision Device in any supported browser (default IP address: 192.168.100.1).

NOTE!

- Cabling must be capable of 1 BGit/s throughout the entire network.
- Make sure that the network settings of the LAN Ethernet adapter of the Machine Vision Controller and the PC fit together. Use a unique network configuration for the LAN Ethernet adapter of the Machine Vision Controller within the LAN network.
- Keep the networks for LAN, RTE and CAM separated in order to optimize the performance of the Machine Vision Controller.
- The network configuration of the LAN Ethernet adapter of the Machine Vision Controller must be different to the network configuration of the RTE and CAM ports of the MVC. The network configuration of the CAM ports on the MVC is fix and reserved. Trying to use one of the reserved IP addresses results into an error message. The following IP addresses are reserved for the CAM Ethernet adapters of the MVC:
 - » 192.168.90.1 – 192.168.90.255
 - » 192.168.91.1 – 192.168.91.255
 - » 192.168.92.1 – 192.168.92.255
 - » 192.168.93.1 – 192.168.93.255
- Furthermore, the following IP addresses are reserved and not allowed at the LAN port of the Machine Vision Controller:
 - » 169.254.0.0/16
 - » 0.0.0.0/8
 - » 1.0.0.0/8
 - » 127.0.0.0/8
 - » 224.0.0.0/4
 - » 233.252.0.0/24
 - » 240.0.0.0/4
 - » 255.255.255.255/3
- Use the software wenglor weHub to find Machine Vision Controllers, to adjust the LAN Ethernet configuration and to access the device website of the MVC. For details, check the operating instructions of the software wenglor weHub ([DNNF024](#)).



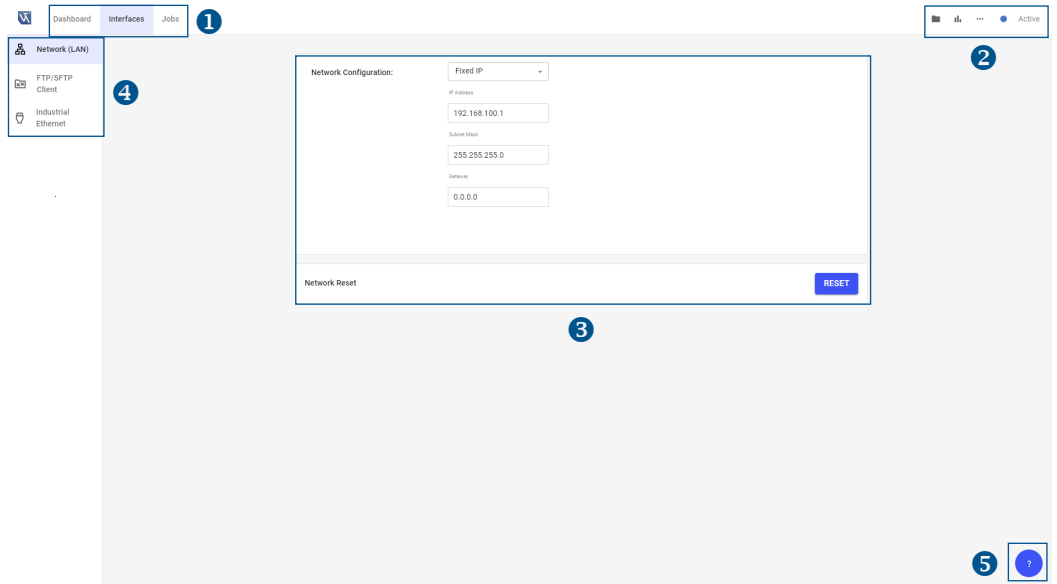
Supported minimum browser versions (tested on Windows 10 (22H2) and Windows 11 (22H2) PCs):

- Chrome 108
- Firefox 108
- Microsoft Edge 108
- Chromium 111

9.1 Structure of Device Website

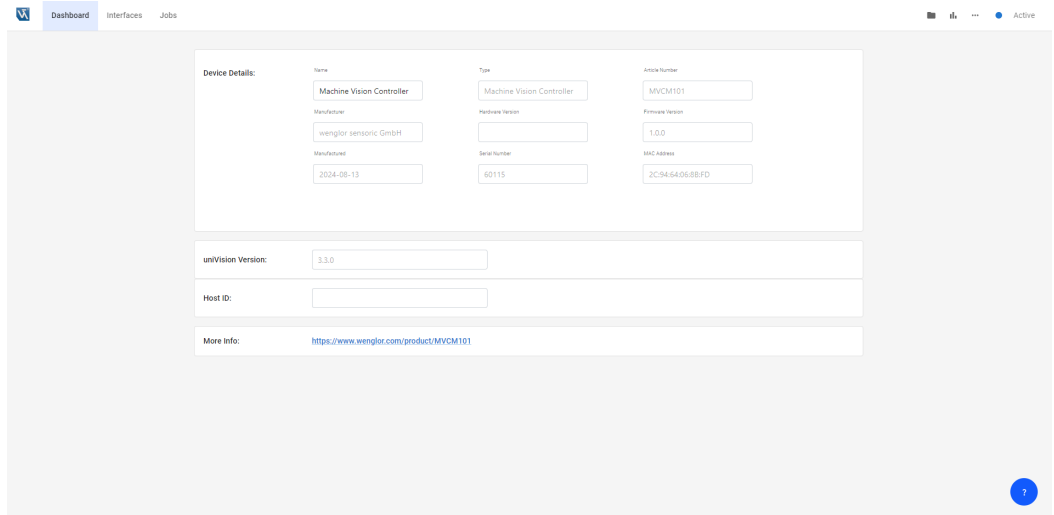
The device website is divided into several areas:

- (1) Tabs
- (2) Icon menu bar
- (3) Workspace
- (4) Side navigation
- (5) Help button (see section „9.10 Help Button“)



9.2 Dashboard

By default, the tab “Dashboard” shows the details of the Machine Vision Controller.



The screenshot shows a web interface with a top navigation bar containing 'Dashboard', 'Interfaces', and 'Jobs'. The 'Dashboard' tab is active. The main content area displays 'Device Details' for a 'Machine Vision Controller'. The details are organized into a grid of input fields:

Device Details:		
Name	Type	Article Number
Machine Vision Controller	Machine Vision Controller	MVCM101
Manufacturer	Firmware Version	Firmware Version
wenglor sensoric GmbH		1.0.0
Manufactured	Serial Number	MAC Address
2024-08-13	60115	2C94640588FD

Below the grid, there are three more input fields:

- uniVision Version: 3.3.0
- Host ID: (empty)
- More info: <https://www.wenglor.com/product/MVCM101>

A blue question mark icon is visible in the bottom right corner of the interface.

Adjust the name, if needed (limited to 63 characters).

The uniVision version of the device shows which version of the software wenglor uniVision 3 on the PC can connect to the device.

NOTE!



- The first two digits of the uniVision version of the device and the software wenglor uniVision 3 on the PC must fit together in order to connect (e.g. uniVision version 3.3.0 on MVC is compatible with software wenglor uniVision 3.3.0 on PC).
- For details about compatibility between firmware and uniVision version, see the release notes and the operating instructions of the software wenglor uniVision 3 ([DNNF023](#)).

The host ID is a device specific identifier. It is helpful for HALCON script users in order to execute a HALCON script only on one specific device (for individual licensing). For details, see uniVision operating instructions ([DNNF023](#) → Module HALCON Script).

“More info” opens a new tab in the browser with the product detail page on the wenglor website (only available with internet access).

9.3 Cameras

Open the tab “Cameras” to see and edit all connected input devices (cameras). The page lists all supported Machine Vision Cameras and 2D/3D Profile Sensors connected to the CAM ports of the Machine Vision Controller and it shows the IP addresses of the input devices. Furthermore, it is possible to assign 2D/3D Profile Sensors to the “VisionApp 360” in order to use the 2D/3D Profile Sensors with the software VisionApp 360 (By default, 2D/3D Profile Sensors are assigned to “uniVision”).

The Machine Vision Controller handles the assignment of the network configuration for the input devices automatically. This can result in reboots of the input devices in case of network changes.

NOTE!



Do not change the network configuration of the input device manually (e.g. at 2D/3D Profile Sensor via the OLED display or on the device website of the 2D/3D Profile Sensor). Instead use the IP address of the page and enter it in the software VisionApp 360. For details, check the operating instruction of the VisionApp 360.



Dashboard **Cameras** Interfaces Jobs

Type	Article Number	Serial Number	IP Address	Assigned to	Access Status
Machine Vision Camera	BBVK007	233000297	192.168.91.11	uniVision	● Not connected
Machine Vision Camera	MV-CS016-10GM	K19668678	192.168.92.10	uniVision	● Connected
2D/3D Profile Sensors	MLSL123	001821	192.168.90.13	VisionApp360	● Not connected

NOTE!

- The page lists only input devices that are connected via the CAM ports of the MVC.
- The following input devices are supported:
 - » 2D/3D Profile Sensors of the weCat3D series (minimum firmware version 2.4.0; only devices in operating mode “Profile Generator” are found)
 - » Machine Vision Cameras BBVK (minimum firmware version 1.97.54.10)
 - » Machine Vision Cameras BBZK (minimum firmware version for BBZK001-004 is 3.4.54, for BBZK005 is 4.0.5 and for BBZK006 is 4.0.4)
- Connect the input devices directly at the four CAM ports of the Machine Vision Controller for best network performance. If working with more than four input device, use a switch to bring several devices together at one of the CAM ports. Keep in mind that the network bandwidth then splits between the devices and the camera settings must be set correctly.
- Cabling must be capable of 1 GBit/S throughout the entire network.

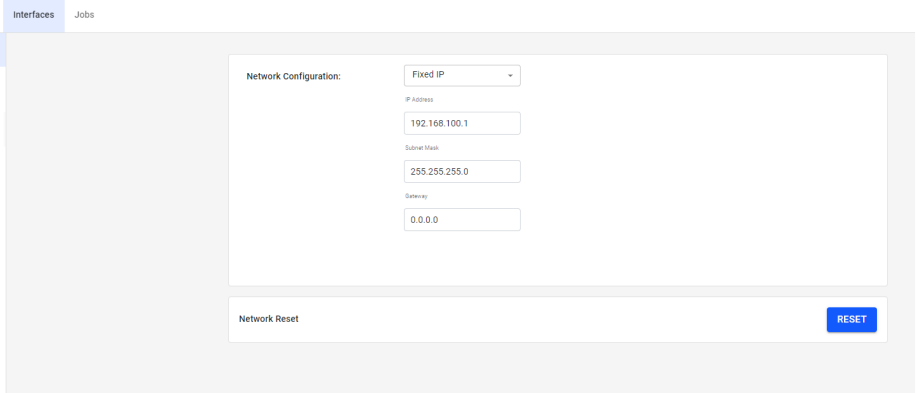


9.4 Interfaces

Open the tab “Interfaces” to see and edit all interface settings.

9.4.1 Network (LAN)

In the side navigation “Network (LAN)” it is possible to adjust the LAN network configuration of the MVC Machine Vision Controller.



The screenshot shows the 'Network (LAN)' configuration page. The top navigation bar includes 'Dashboard', 'Interfaces', and 'Jobs'. The left sidebar has 'Network (LAN)' selected, with sub-items for 'FTP/SFTP Client' and 'Industrial Ethernet'. The main content area is titled 'Network Configuration:' and features a dropdown menu set to 'Fixed IP'. Below this are four input fields: 'IP Address' (192.168.100.1), 'Subnet Mask' (255.255.255.0), and 'Gateway' (0.0.0.0). At the bottom, there is a 'Network Reset' label and a blue 'RESET' button.

Configuration for LAN Ethernet adapter of Machine Vision Controller:

- Fixed IP: Set fix IP address, subnet mask and gateway of the Machine Vision Controller.
- Obtain IP: DHCP server in the network can assign network settings automatically to the Machine Vision Controller.

NOTE!

- Cabling must be capable of 1 GBit/s throughout the entire network.
- Use a unique network configuration for the LAN Ethernet adapter of the Machine Vision Controller within the LAN network.
- Keep the networks for LAN, RTE and CAM separated in order to optimize the performance of the Machine Vision Controller.
- The network configuration of the LAN Ethernet adapter of the Machine Vision Controller must be different to the network configuration of the RTE and CAM ports of the MVC. The network configuration of the CAM ports on the MVC is fixed and reserved. Trying to use one of the reserved IP addresses results in an error message. The following IP addresses are reserved for the CAM Ethernet adapters of the MVC:
 - » 192.168.90.1 – 192.168.90.255
 - » 192.168.91.1 – 192.168.91.255
 - » 192.168.92.1 – 192.168.92.255
 - » 192.168.93.1 – 192.168.93.255
- Furthermore, the following IP addresses are reserved and not allowed at the LAN port of the Machine Vision Controller:
 - » 169.254.0.0/16
 - » 0.0.0.0/8
 - » 1.0.0.0/8
 - » 127.0.0.0/8
 - » 224.0.0.0/4
 - » 233.252.0.0/24
 - » 240.0.0.0/4
 - » 255.255.255.255/3
- Confirm the reboot info to start the network change. During the network change, a software reboot is done automatically.
- If there is no DHCP server in the network, the Machine Vision Controller will start after a certain time with a backup network configuration.
- After network changes, enter the new IP address in the browser or open the software wenglor weHub in order to find the device again (for details, see operating instructions of software wenglor weHub [DNNF024](#)).



“Network reset” resets the LAN Ethernet configuration of the device to its defaults:

- IP address: 192.168.100.1
- Subnet mask: 255.255.255.0
- Gateway: 0.0.0.0

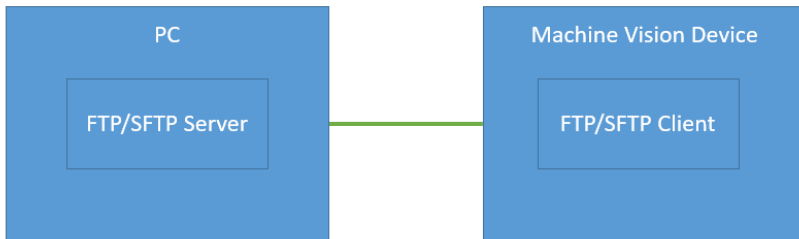


NOTE!

Confirm the reboot info to start the network reset. During the network reset, a software reboot is done automatically.

9.4.2 FTP/SFTP Client

Adjust the side navigation “FTP/SFTP Client” to store data of Device FTP on an external FTP or SFTP server in the network (e.g. on the PC).



FTP/SFTP Client Settings:

- Select the protocol FTP or SFTP
- Enter the IP address of the device where the FTP/SFTP server is running on (e.g. the PC)
- Enter the username and password of the FTP/SFTP server

NOTE!



- Password is only visible if authentication is deactivated or, in case of activated authentication, if user of user group admin or admin (default) is logged in.
- For details about process data via Device FTP, see operating instructions of the software wenglor uniVision 3 [DNNF023](#).

9.4.3 weHub Server

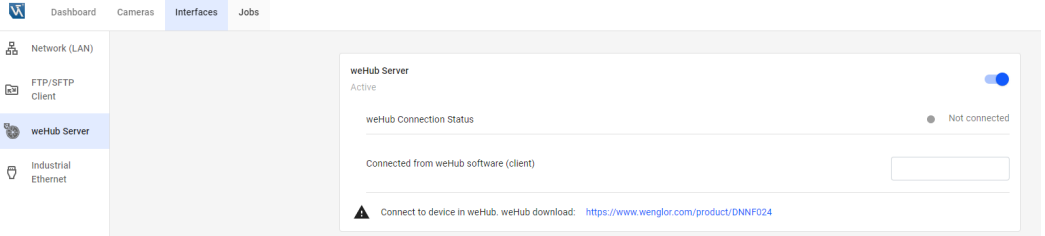
Adjust the side navigation “weHub Server” in order to adjust the weHub server settings.

- weHub Server: Activate or deactivate the weHub Server (by default activated). A connection from the weHub client software is only possible, if the weHub Server on the Machine Vision Device is active. Maximum one connection is possible to the weHub Server on the Machine Vision Device.
- weHub Connection Status: Shows if any weHub client software is connected to the weHub Server on the Machine Vision Device or not.
- Connected from weHub software (client): Shows the IP address of the device where the weHub client software runs if it is connected to the Machine Vision Device.

NOTE!



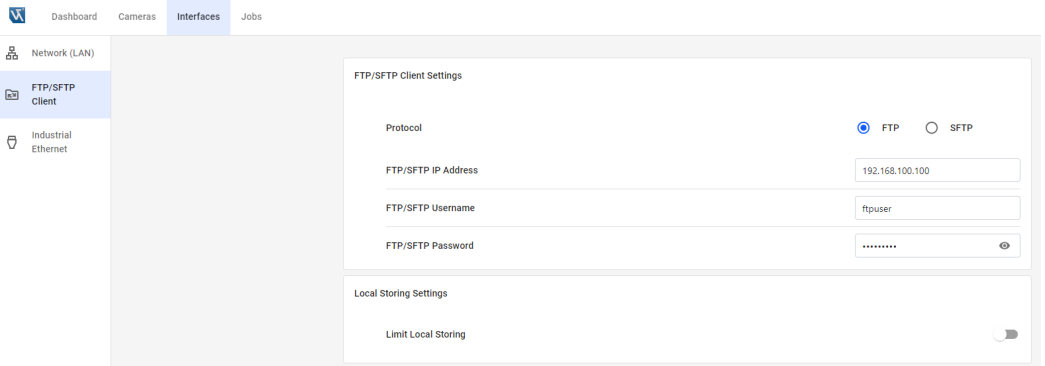
- Download and install the software wenglor weHub from the wenglor website ([DNNF024](#)). Click the action button “Connect to device” at the device in order to connect to the weHub server on the Machine Vision Device.
- Connecting from the weHub software to Machine Vision Devices allows to directly upload images to AI Lab and to directly download models from AI Lab for Module Image AI within the uniVision job. For details, see [DNNF023](#) and the Interface Protocol for the AI Loop.



Local Storing Settings:

Limit local storing of files on the Machine Vision Controller to have a maximum number of files in the input and/or output folder (see section „9.6 File Management“). If files are stored automatically by uniVision (e.g. via Device FTP → Data Sink set to local input or output folder), the files with the oldest creation time are automatically deleted if exceeding the maximum number of files (independent of the file type or file ending). Sub folders and files within sub folders are ignored (not counted and not deleted). Deleting the oldest files is done regularly (not in realtime).

- Limit Local Storing: Enables or disables to limit local storing. By default, limit local storing is disabled.
- Number of Files: Defines the maximum number of files that is stored in the file location (only available if Limit Local Storing is enabled).
- Location: Defines the file location to limit local storing (only available if Limit Local Storing is enabled). Select local input folder, local output folder or local input and output folder.



9.4.4 Industrial Ethernet

Adjust the side navigation “Industrial Ethernet” in order to communicate via Industrial Ethernet (e.g. PROFINET) to communication partners via the RTE connector of the Machine Vision Device.



NOTE!

The side navigation “Industrial Ethernet” is only visible if supported by the Machine Vision Controller.

The screenshot shows the Machine Vision Controller web interface. The top navigation bar includes 'Dashboard', 'Cameras', 'Interfaces', and 'Jobs'. The left sidebar has 'Network (LAN)', 'FTP/SFTP Client', and 'Industrial Ethernet' (which is selected). The main content area is titled 'Industrial Ethernet Settings' and contains the following fields and buttons:

Field Name	Value / Action
Load Configuration File	<input type="button" value="CHOOSE"/>
Current Configuration File Name	<input type="text" value="J001"/>
Current Configuration File Version	<input type="text" value="2"/>
Current Industrial Ethernet Protocol	<input type="text" value="EtherCAT"/>
Current Configuration Description	<input type="button" value="DOWNLOAD"/>
Reset Configuration	<input type="button" value="RESET"/>
MAC Address	<input type="text" value="00:02:A2:92:11:3A"/>
Interface Protocol	<input type="button" value="DOWNLOAD"/>

The following options are available:

- Load Configuration File: Enables to load a different configuration file for the user-defined process data.
- Current Configuration File Name: Shows the current name of the configuration file.
- Current Configuration File Version: Shows the current version of the configuration file.
- Current Industrial Ethernet Protocol: Shows the current Industrial Ethernet protocol (e.g. PROFINET).
- Current Configuration Description: Opens a separate tab with the description of the current configuration.
- Reset Configuration: Resets the configuration file to the default configuration (E001). Resetting the configuration file requires a device reboot.
- MAC Address: Shows the MAC Address of the RTE connector (in order to identify the device if using BootP at EtherNet/IP).
- Industrial Ethernet Interface Protocol: Opens a separate tab with the interface protocol for Industrial Ethernet

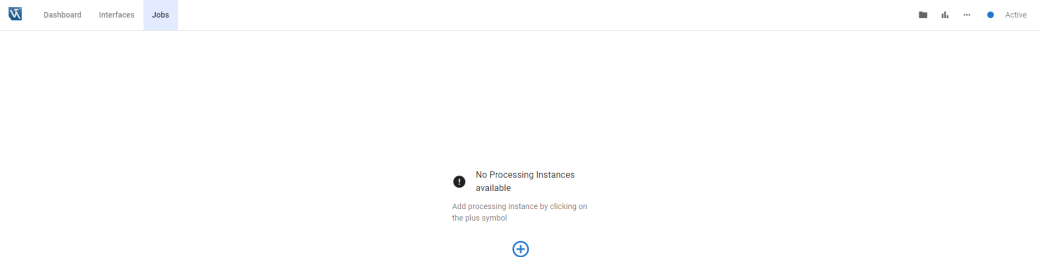


NOTE!

For details, see interface protocol [DNNF023](#).

9.5 Jobs

Open the tab “Jobs” in order to see and edit the uniVision job settings. By default, the page “Jobs” on the Machine Vision Controller is empty.



Click on the plus symbol to create a processing instance with an input device that is connected via one of the four CAM ports of the Machine Vision Controller.

NOTE!

- The device search lists only input devices that are connected via the CAM ports of the MVC.
- The following input devices are supported:
 - » 2D/3D Profile Sensors of the weCat3D series (minimum firmware version 2.4.0; only devices in operating mode “Profile Generator” are found)
 - » Machine Vision Cameras BBVK (minimum firmware version 1.97.54.10)
 - » Machine Vision Cameras BBZK (minimum firmware version for BBZK001-004 is 3.4.54, for BBZK005 is 4.0.5 and for BBZK006 is 4.0.4)
- Connect the input devices directly at the four CAM ports of the Machine Vision Controller for best network performance. If working with more than four input device, use a switch to bring several devices together at one of the CAM ports. Keep in mind that the network bandwidth then splits between the devices and the camera settings must be set correctly.
- Cabling must be capable of 1 GBit/S throughout the entire network.



Select the relevant input device in order to create a processing instance.

Select Input Device

Type	Article Number	Serial Number	IP Address	MAC Address
Machine Vision Camera	MV-CS016-10GM	K19668678	192.168.91.10	34BD20091DF4
Machine Vision Camera	BBVK007	233000297	192.168.92.11	1C0FAF0C1DA8
2D-/3D-profile sensors	MLSL123	1821	192.168.90.12	544A050A1997

The page “Jobs” shows then the processing instance.

Dashboard Cameras Interfaces **Jobs**

we_processing_instance_1 Active: Running

Current Job

11.u3p

uniVision 3 is required for editing the job. uniVision 3 download: <https://www.wenglor.com/product/DNNF023>

Visualization

11.u3p

It is possible to create up to 16 processing instances. Each processing instance can have exactly one input device. Several input devices at one processing instance are not supported.

we_processing_instance_1

Active: Running

Current Job
No job available

uniVision 3 is required for editing the job. uniVision 3 download: <https://www.wenglor.com/product/DNNF023>

Visualization
No job available

we_processing_instance_2

Active: Running

Current Job
No job available

uniVision 3 is required for editing the job. uniVision 3 download: <https://www.wenglor.com/product/DNNF023>

Visualization
No job available

It is possible to delete the processing instance, to edit the name of the processing instance and to show the available network ports. Furthermore, it is possible to see the current status of the Processing Instance and to download the history of the maximum 50 last warnings or errors that happened after booting (warnings and errors are not kept at reboots of the device or the Processing Instance).



NOTE!

For details about the different ports, see operating instructions of software wenglor uniVision 3 [DNNF023](https://www.wenglor.com/product/DNNF023).

we_processing_instance_1 - Interfaces			
Name	↑	Protocol	Port
LIMA Read-Only		TCP	33040
LIMA Read/Write Full		TCP	33020
LIMA Read/Write Limited		TCP	33060

OK

By default, the Processing Instance boots with the last loaded job. If no job is available, it boots with an empty (undefined) job. It is also possible to select one specific fix start job of the project folder on the device.



NOTE!

Upload or download of uniVision jobs is possible via File Management (see section „9.6 File Management“).

By default, the Processing Instance keeps the last acquisition status after booting. It is possible to select the option to automatically start or stop the acquisition after booting.



NOTE!

Active acquisition means that the device is ready to receive trigger signals.

Dashboard Interfaces **Jobs**

we_processing_instance_1 Active: Running ? ✎ 🗑

Current Job ✎
No job available

Visualization ✎
No job available

Startup Policy

Job Fix start job Last loaded job

Acquisition Automatically start Automatically stop Keep last state

Input Device

Type	Article Number	Serial Number	IP Address	MAC Address	
2D-/3D-profile sensors	MSL123	1821	192.168.90.12	544A050A1997	✎

Robot Server Inactive

Switching to another input device is possible by clicking on the edit icon next to the input device. Switching from a Machine Vision Camera to a 2D/3D Profile Sensor and reverse is not supported. If needed, delete the processing instance and create a new processing instance with the different device type.

Click in the section “Digital IOs” on the button CHOOSE to add digital inputs or outputs of the MVC to the processing instance or to remove digital IOs of the MVC from the processing instance.

NOTE!



- The section “Digital IOs” is only visible if supported by the Machine Vision Controller.
- Editing the digital IOs of a processing instance requires a restart of the processing instance. Make sure to store the uniVision job settings before adding or removing IOs. A warning message is shown before the restart of the processing instance.
- Removing all digital inputs or all digital outputs of a processing instance is possible via the reset icon.

A screenshot of a configuration dialog box for digital IOs. The dialog is split into two columns: "Digital Input" and "Digital Output". Each column has a refresh icon (circular arrow) to its right. Under "Digital Input", there are eight rows, each with a checkbox and a label: "Digital Input 1" (unchecked), "Digital Input 2" (checked), "Digital Input 3" (checked), "Digital Input 4" (unchecked), "Digital Input 5" (unchecked), "Digital Input 6" (unchecked), "Digital Input 7" (unchecked), and "Digital Input 8" (unchecked). Under "Digital Output", there are also eight rows: "Digital Output 1" (unchecked), "Digital Output 2" (checked), "Digital Output 3" (checked), "Digital Output 4" (unchecked), "Digital Output 5" (unchecked), "Digital Output 6" (unchecked), "Digital Output 7" (unchecked), and "Digital Output 8" (unchecked). At the bottom right of the dialog, there are two buttons: "CANCEL" (white with blue border) and "CONFIRM" (solid blue).

The processing instance then shows the associated digital inputs and outputs.

Dashboard Interfaces Jobs

we_processing_instance_1 Active: Running ⓘ ✎ 🗑️

Current Job
No job available ✎

uniVision 3 is required for editing the job. uniVision 3 download: <https://www.wenglor.com/product/DNNF023>

Visualization
No job available ✎

Startup Policy

Job Fix start job Last loaded job

Acquisition Automatically start Automatically stop Keep last state

Input Device

Type	Article Number	Serial Number	MAC Address	
2D/3D-profile sensors	MLSL123	1821	544A050A1997	✎

Digital I/Os

Digital Input 2	Digital Output 2	CHOOSE
Digital Input 3	Digital Output 3	

Robot Server
Inactive

⏪

By default, the robot server is deactivated. Activate it, if the communication to robots is needed. For Processing Instances with Machine Vision Cameras, the following settings appear.

The screenshot shows the 'Jobs' interface for a processing instance named 'we_processing_instance_1'. The interface is divided into several sections:

- Current Job:** Shows 'No job available'.
- Visualization:** Shows 'No job available'.
- Startup Policy:** Contains two sub-sections:
 - Job:** Radio buttons for 'Fix start job' (unselected) and 'Last loaded job' (selected).
 - Acquisition:** Radio buttons for 'Automatically start' (unselected), 'Automatically stop' (unselected), and 'Keep last state' (selected).
- Input Device:** A table listing input devices:

Type	Article Number	Serial Number	IP Address	MAC Address
Machine Vision Camera	MFC-C616-105M	K1666673	192.168.92.10	84:8D:2D:28:1D:F4
- Robot Server:**
 - Status: Active (toggle is on).
 - Settings:**
 - Robot Manufacturer: Dropdown menu set to 'UR Polyscope 5 URCap'.
 - Robot Port: Text input field containing '6008'.
 - Current Calibration File: Text input field containing 'No calibration available'.
 - Load Calibration File: Button labeled 'CHOOSE'.
 - Status:**
 - Robot Connection: Not connected (grey dot).
 - Processing Instance Connection: Connected (blue dot).
 - Device Robot: Not connected (grey dot).
 - Error: No error (grey dot).

- Robot Manufacturer: Select the relevant robot manufacturer (UR Polyscope 5 URCap, UR Polyscope X Script, Kuka, ABB, Kassow Robotics or Generic).
- Robot Port: Depending on the robot manufacturer the default port is shown. Edit the port, if needed. Make sure to use a unique port (especially if working with several processing instances).
- Current Calibration File: Shows the name of the currently loaded calibration file.
- Load Calibration File: Allows to load another calibration file. The calibration file is only valid for one specific input device and valid only if the relation between camera, lens and robot is unchanged (e.g. it gets invalid if the camera position is changed or if the lens is changed).

NOTE!

- Upload or download of calibration files is possible via File Management (see section „9.6 File Management“).
- Do not change the name of the calibration file.
- Loading another calibration file from the device website requires to disconnect and re-connect again from robot side to the robot server in order to get the changes also on robot side (e.g. in the URCap).
- For more details about robot vision, see operating instructions of software wenglor uniVision 3 [DNNF023](https://www.wenglor.com/product/DNNF023).



For Processing Instances with 2D/3D Profile Sensors, the following settings appear.

The screenshot shows the configuration page for a processing instance. The 'Startup Policy' section has 'Job' selected and 'Last loaded job' chosen. The 'Acquisition' section has 'Keep last state' selected. The 'Input Device' table lists one device: a 2D/3D profile sensor with article number ML5L123, serial number 1821, IP address 192.168.96.12, and MAC address 5444020A1997. The 'Robot Server' section is active, with 'Kuka' selected for the manufacturer and '6008' for the port. The status indicators show 'Robot Connection' as connected, 'Processing Instance Connection' as not connected, 'Device Robot' as not connected, and 'Error' as no error.

Type	Article Number	Serial Number	IP Address	MAC Address
2D/3D-profile sensors	ML5L123	1821	192.168.96.12	5444020A1997

- Robot Manufacturer: Select the relevant robot manufacturer (KUKA, ABB, Fanuc, Yaskawa or Kawasaki).
- Robot Port: Depending on the robot manufacturer the default port is shown. Edit the port, if needed. Make sure to use a unique port (especially if working with several processing instances).

NOTE!



For more details about robot welding, see operating instructions of software wenglor uniVision 3 [DNNF023](https://www.wenglor.com/product/DNNF023) and separate operating instructions for optical seam tracking solutions.

The following status is shown for the robot server:

- Robot Connection: Shows if the robot is connected to the robot server or not.
- Processing Instance Connection: Shows if the robot server is connected to the processing instance via the LIMA Read/Write Limited port or not.
- Device Robot: Shows if the robot server is connected to Device Robot Vision or to Device Robot Weld Seam Tracking or not.
- Error: Shows if there is any error (e.g. if port is already in use).

Click on “Edit job” in the section “Current job” in order to open the uniVision software for editing the uniVision job.

NOTE!

- Make sure that the suitable version of the software wenglor uniVision 3 is installed on the PC.
- For details about the suitable version of the software wenglor uniVision 3, check the uniVision version of the device at the tab “Dashboard” (see section „9.2 Dashboard“).
- Click on the link to open the product detail page of the software wenglor uniVision 3 ([DNNF023](#)) in order to download the suitable software version at “Downloads” → “Soft- and Firmware” (only available with internet access).
- The uniVision software is described in detail in the operating instructions of the software wenglor uniVision 3 [DNNF023](#).



Dashboard Interfaces **Jobs**

we_processing_instance_1 Active: Running

Current Job No job available

uniVision 3 is required for editing the job. uniVision 3 download: <https://www.wenglor.com/product/DNNF023>

Visualization No job available

Click on visualization opens the webbased job visualization in a separate tab of the browser.



NOTE!

The webbased visualization is described in the operating instructions of the software wenglor uniVision 3 [DNNF023](#).

Dashboard Interfaces **Jobs**

we_processing_instance_1 Active: Running

Current Job No job available

uniVision 3 is required for editing the job. uniVision 3 download: <https://www.wenglor.com/product/DNNF023>

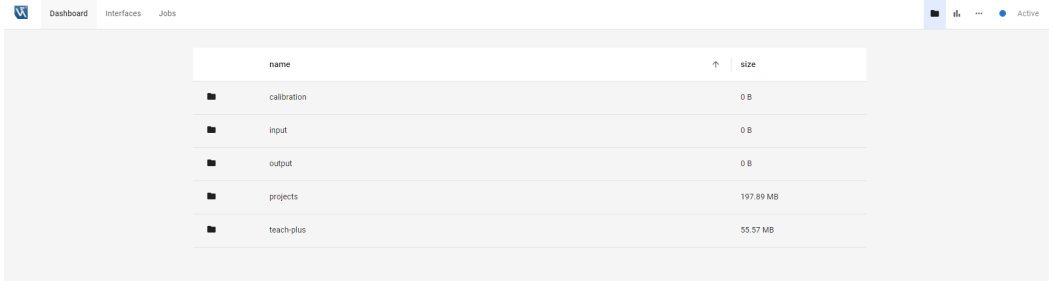
Visualization No job available

9.6 File Management

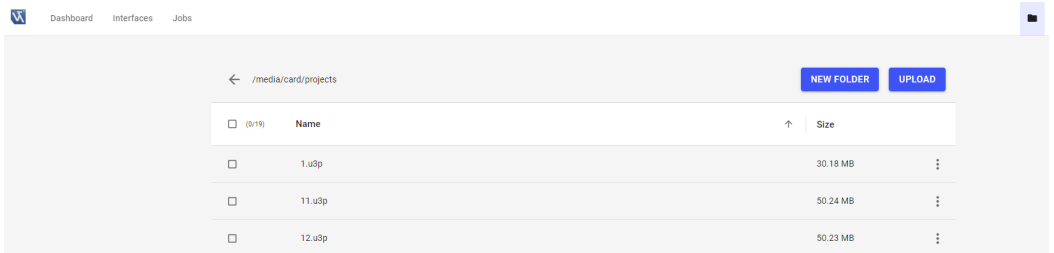
Click in the icon menu bar on the “File Management” icon in order to access files on the Machine Vision Device.

The following folders are available:

- Calibration: Contains calibration files for robot vision (see section „9.5 Jobs“).
- Input: Contains data (e.g. images or profiles) for the simulation mode. For details, see operating instructions of software wenglor uniVision 3 ([DNNF023](#)).
- Output: Contains data (e.g. images, profiles or text files) stored via Device FTP. For details, see operating instructions of [DNNF023](#).
- Projects: Contains uniVision job files.
- Teach-plus: Contains one single teachplus file for storing the uniVision job file temporarily on the device before downloading it to the projects folder of the host PC. For details, see operating instructions of [DNNF023](#).

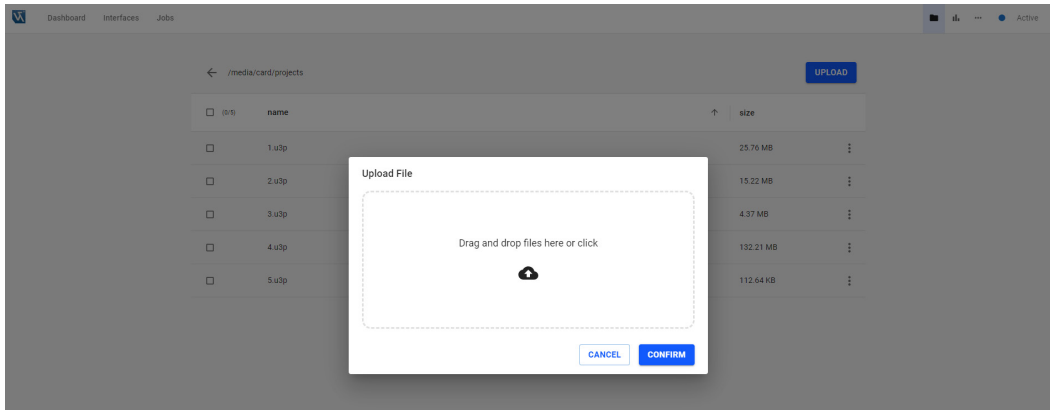


Select one of the folders (e.g. projects) to access the files.



Click on the button “New Folder” to create a new folder.

Click on the button “Upload” in order to upload files to the folder.



Click on the extended menu to rename, duplicate, copy to, move to, download or delete files.



NOTE!



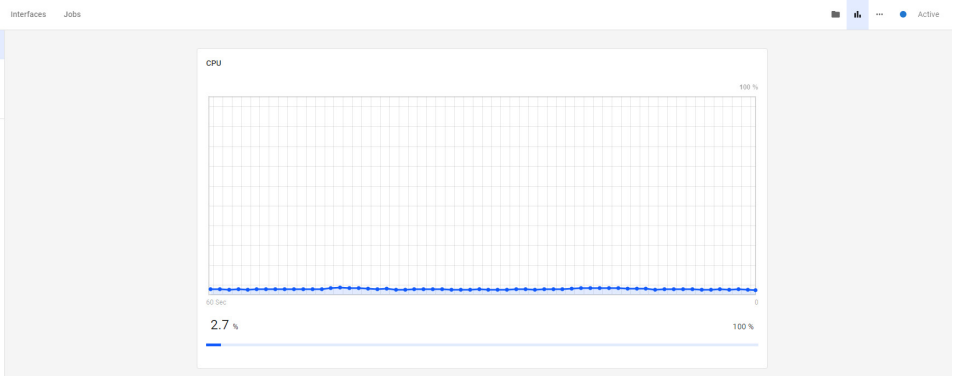
- It is possible to select several files in order to duplicate, copy to, move to, download or delete them.
- Do not edit the name of calibration files.

9.7 Diagnosis

Click in the icon menu bar on the “Diagnosis” icon in order to get further diagnosis info.

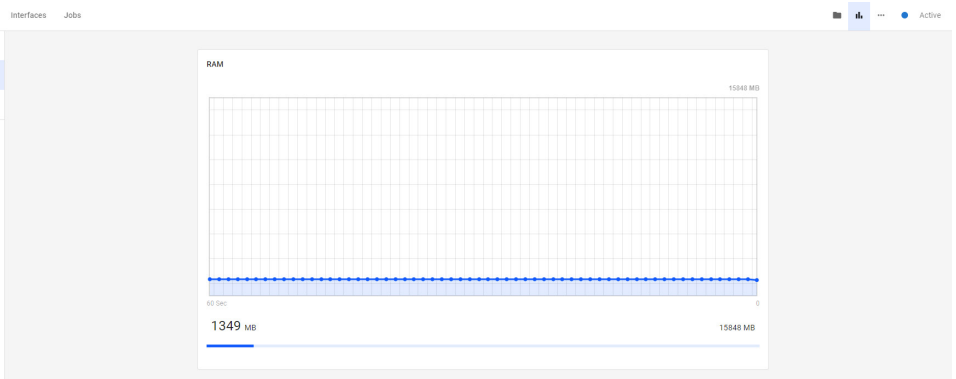
9.7.1 CPU

The side navigation “CPU” shows the CPU load of the Machine Vision Device for a maximum of the last 60 seconds.



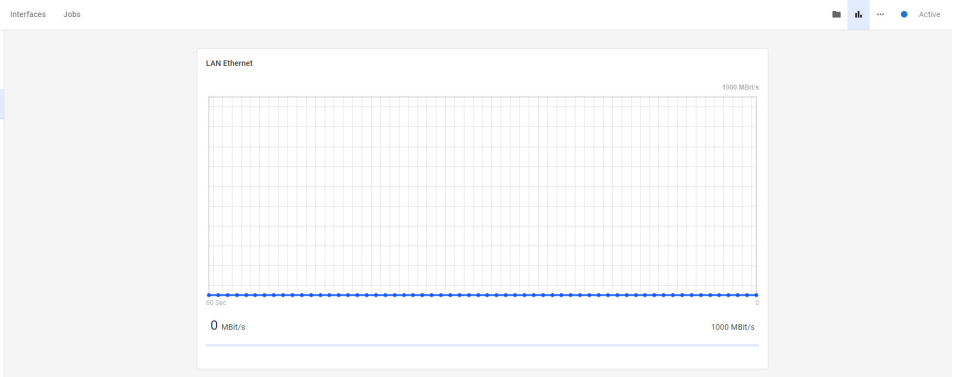
9.7.2 RAM

The side navigation “RAM” shows the RAM usage of the Machine Vision Device for a maximum of the last 60 seconds.



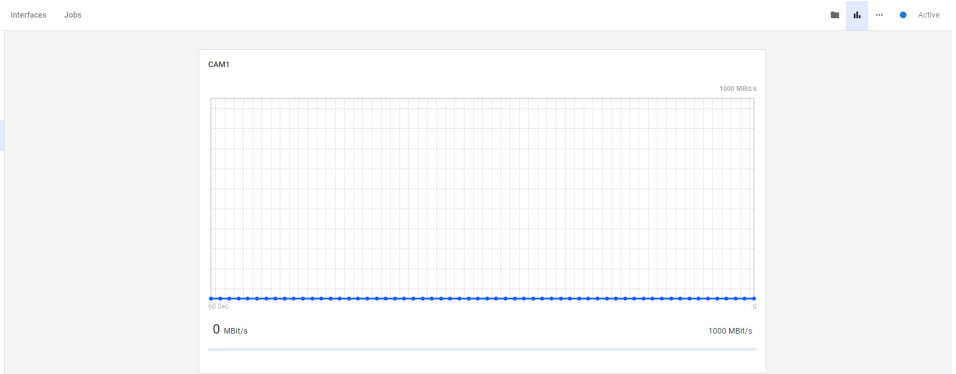
9.7.3 LAN Ethernet

The side navigation “LAN Ethernet” shows the network load at the LAN connector of the Machine Vision Device for a maximum of the last 60 seconds.



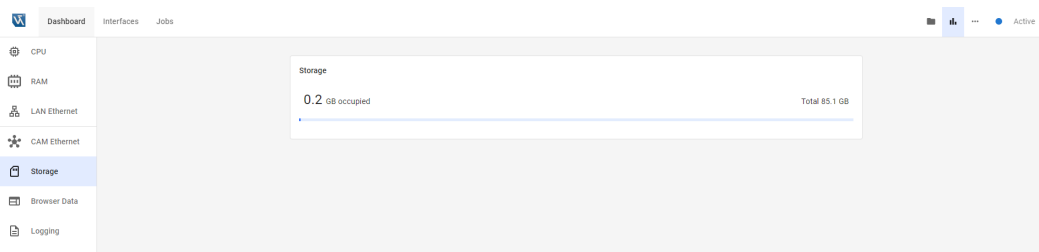
9.7.4 CAM Ethernet

The side navigation “CAM Ethernet” shows the network load at the four CAM connectors of the Machine Vision Device for a maximum of the last 60 seconds.



9.7.5 Storage

The side navigation “Storage” shows the currently occupied and the complete available user storage of the Machine Vision Device.



9.7.6 Temperature

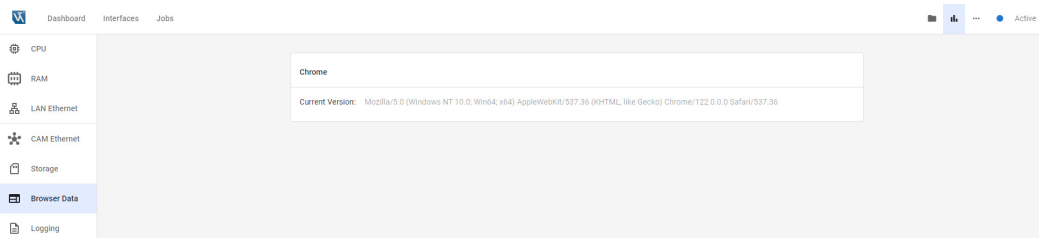
The side navigation “Temperature” shows the temperature values of all temperature sensors within the Machine Vision Device for a maximum of the last 60 seconds.

The following temperature sensors are available:

- CPU Core 0 Temperature
- CPU Core 1 Temperature
- CPU Core 2 Temperature
- CPU Core 3 Temperature
- CPU Core 4 Temperature
- CPU Core 5 Temperature
- CPU Core 6 Temperature
- CPU Core 7 Temperature

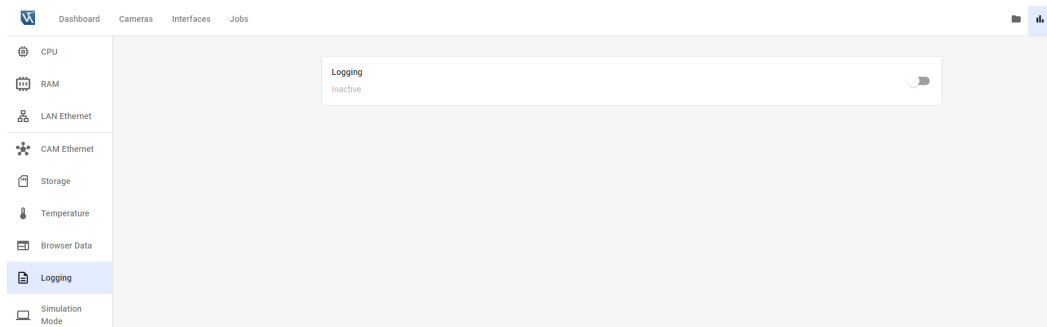
9.7.7 Browser Data

The side navigation “Browser Data” shows the version of the currently used browser.



9.7.8 Logging

The side navigation “Logging” allows to download logging info for all services of the device in one zip file for the wenglor support and development team. Enabling “Logging” requires a reboot of the device (by default “Logging” is disabled).



9.7.9 Simulation Mode

The side navigation “Simulation Mode” allows to activate the simulation mode on the Machine Vision Device. It is possible to evaluate reference data (e.g. images) of the input folder (see File Management on device website) in order to check the performance (process times) for each module on the real device.

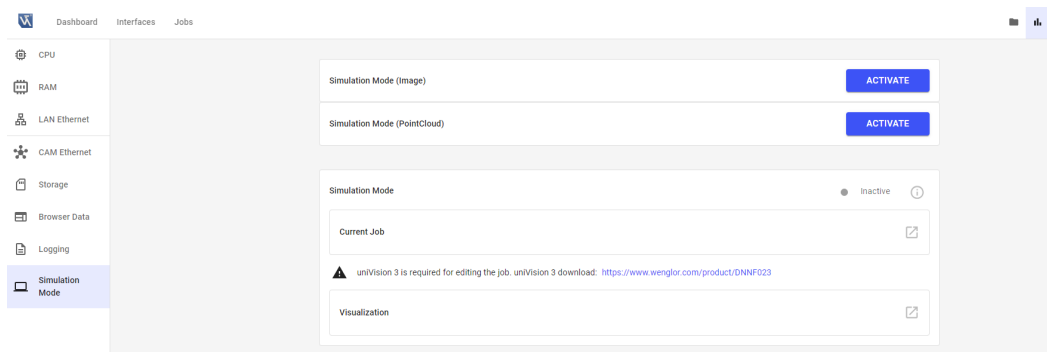
Two modes are available:

- Simulation Mode (Image): To evaluate 2D images of the input folder (bmp images with 8 bit depth and with maximum size of 24 MP).
- Simulation Mode (Profile): To evaluate profiles of the input folder (ply pointclouds).



NOTE!

Activating the simulation mode stops all active processing instances on the Machine Vision Device. Make sure to save the jobs of active processing instances before activating the Simulation Mode. Only a single simulation mode is possible at the same time.

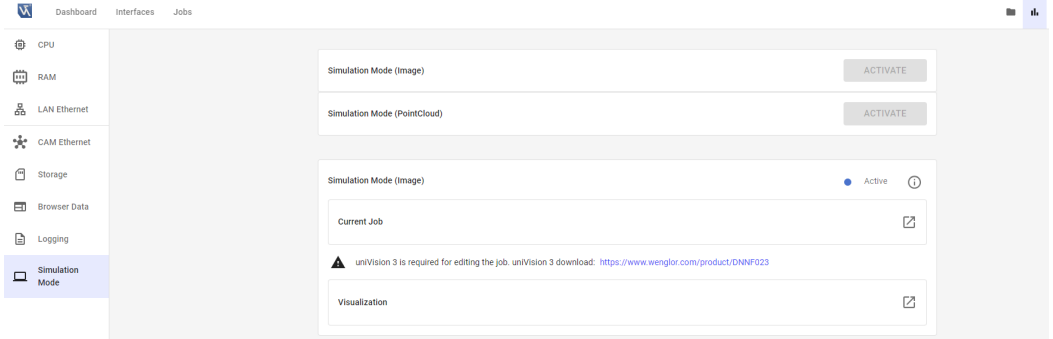


Open the current job in order to create a new job in simulation mode via the software wenglor uniVision 3 or open the visualization in a new browser tab in order to create a job specific visualization.



NOTE!

In Simulation Mode only certain interfaces are supported. For details, see operating instructions of software wenglor uniVision 3 ([DNNF023](#)).



Reboot the device in order to exit the simulation mode and to start again in normal operating mode.



NOTE!

For details about the simulation mode on the Machine Vision Device, see the operating instructions of [DNNF023](#).

9.8 Settings

Click in the menu bar on the “Settings” icon for further device settings.

9.8.1 VisionApp 360

By default, the software VisionApp 360 is not started when booting the Machine Vision Controller. Enabling “Auto Start VisionApp 360 at Bootup of MVC” directly starts the software VisionApp 360 and automatically starts it at each bootup of the MVC. Connect monitor, keyboard and mouse directly to the MVC or create a remote desktop connection from the PC via the LAN network to the MVC in order to setup the software VisionApp 360.



NOTE!

Use the software VisionApp 360 to combine the height profiles of several 2D/3D Profile Sensors to one united height profile (e.g. to calculate 360° cross sections). For details, see the operating instruction of the VisionApp 360.

9.8.2 Reboot & Reset

The side navigation “Reboot & Reset” allows to perform a software reboot of the device. Furthermore, it is possible to reset the settings of the device website to the defaults.

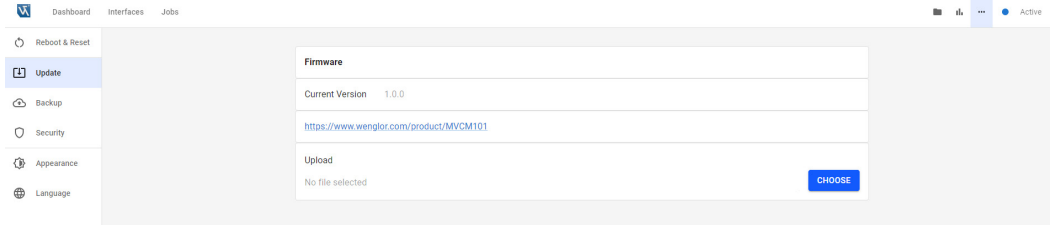


NOTE!

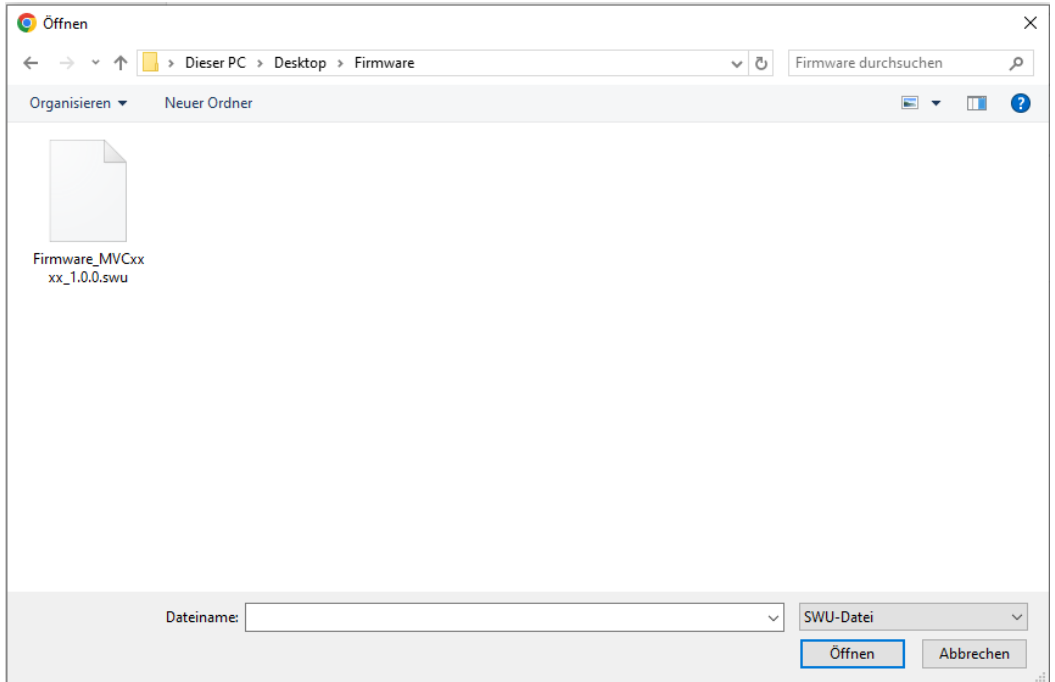
Device reset only resets the settings on the device website. It does not reset the camera settings (e.g. exposure time), the uniVision jobs or the calibration files. Furthermore, the LAN network settings and the configuration file for Industrial Ethernet are not reset. Resetting the LAN network settings and the RTE configuration file is possible separately.

9.8.3 Update

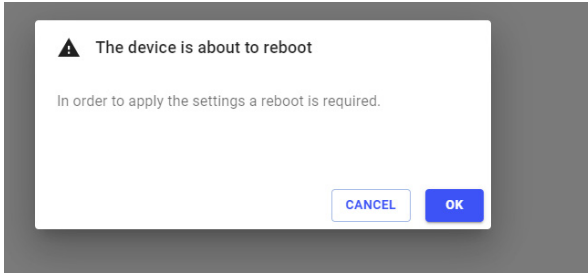
The side navigation “Update” shows the current firmware version and allows to update the firmware of the device. “Current version” shows the current firmware version. Clicking on the link opens a new tab in the browser to the product detail page on the wenglor website. The latest firmware version is available at “Downloads” → “Soft- and Firmware” (only available with internet access).



Click on “Choose” and select the *.swu firmware update file.



Click on OK to start the firmware update. During the firmware update, a software reboot is automatically done.



Firmware Compatibility

The firmware version number consists of three digits (e.g. Firmware MVC 1.0.0)

- Major release: The first digit is changed (no compatibility).
- Feature release: The second digit is changed.
- Bugfix release: The third digit is changed.

The following applies with regard to the compatibility of the device website:

- At a bugfix release, the settings of the device website are unchanged.
- At a feature release upgrade (second digit increases), the settings of the device website remain.
- At a feature release downgrade (second digit decreases), it is possible that the settings of the device website are set back to default.

NOTE!



- A backup of the device settings for the device website is done when the device settings change at a firmware update or downgrade (contains maximum one backup file).
- Contact the wenglor support team (email to support@wenglor.com) in case of activating again the settings of the device website on a compatible firmware version.

9.8.4 Backup

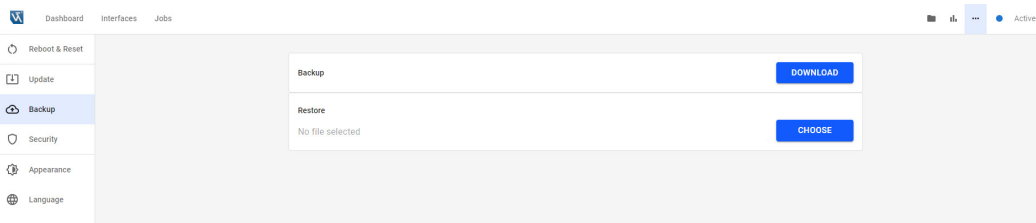
The side navigation “Backup” allows to create and to restore a backup of the settings for the device website.

- Backup: Creates a backup file for the settings of the device website.
- Restore: Allows to restore a backup on the device. Restoring a backup file is only possible in case of the same device type (article number) and the same firmware version of the device. If loading the backup file on another device with the same article number, make sure that the same firmware version (and if needed the same configuration file for Industrial Ethernet) is installed on it before restoring the backup

NOTE!



- The backup does not include the content of the file location /media/card (e.g. uniVision jobs or calibration files for robot vision). Store uniVision jobs and calibration files separately, if needed.
- The backup does not include the configuration file for Industrial Ethernet. Make sure to install the suitable configuration file for Industrial Ethernet individually.
- The backup does not include the network configuration of the LAN Ethernet connector. Make sure to set the LAN network configuration accordingly.



9.8.5 Security

The side navigation “Security” allows to activate authentication in order to protect the device from unwanted changes. After activating authentication, the button “Login” appears at the icon menu bar. The following table shows the rights for each user group.

Functionality	Admin or admin (default)	Setter	Worker	Logged off
Software wenglor weHub: • Find devices • Open devices extended view • Connect to device and disconnect from device (weHub Server) • Access device website	Yes	Yes	Yes	Yes
Software wenglor weHub: Edit name and network settings	Yes	No	No	No
Device website: See properties	Yes	Yes	Yes	Yes
Device website: Edit properties	Yes	No	No	No

Access and edit job configuration via software wenglor uniVision 3	Yes	Yes	No	No
Access and see webbased visualization	Yes	Yes	Yes	Yes
Interact in Run Mode on webbased visualization	Yes	Yes	Yes	No
Edit webbased visualization	Yes	Yes	No	No

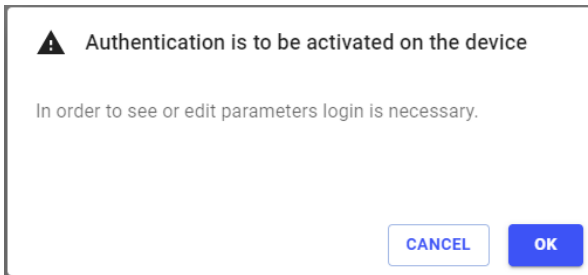


NOTE!

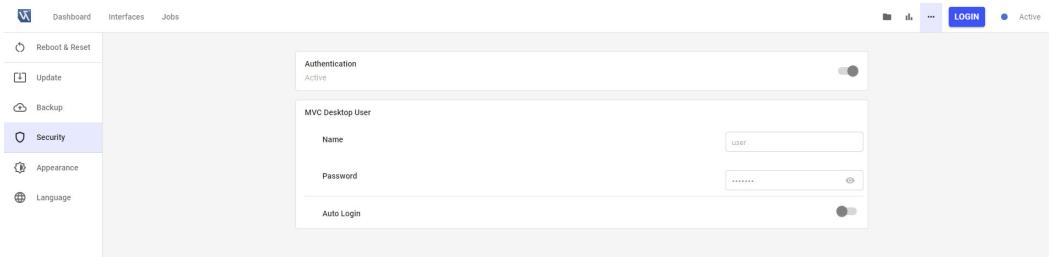
Remember usernames and passwords! In case of lost passwords, contact support@wenglor.com

By default authentication is deactivated.

Enable “Authentication” and click on OK.

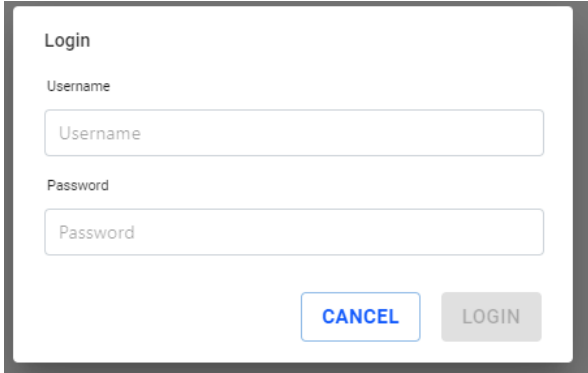


If authentication is active, the button “Login” appears in the icon menu bar.



Enter username and password. Use admin (default) to login for the first time.

- Username: admin
- Password: admin



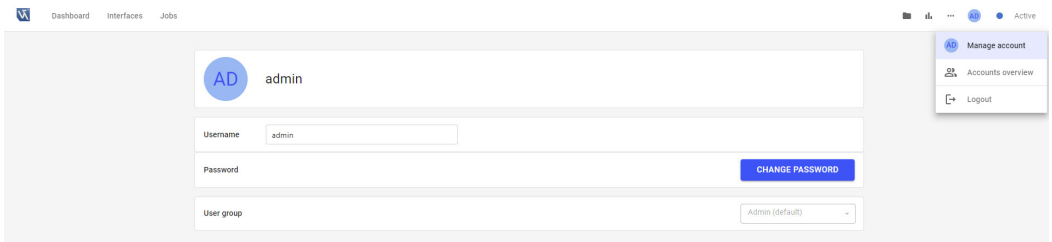
The image shows a login form titled "Login". It contains two input fields: "Username" and "Password". Below the fields are two buttons: "CANCEL" (blue text on a white background) and "LOGIN" (grey text on a grey background).

Edit username or password of admin (default) via clicking on "Manage account".



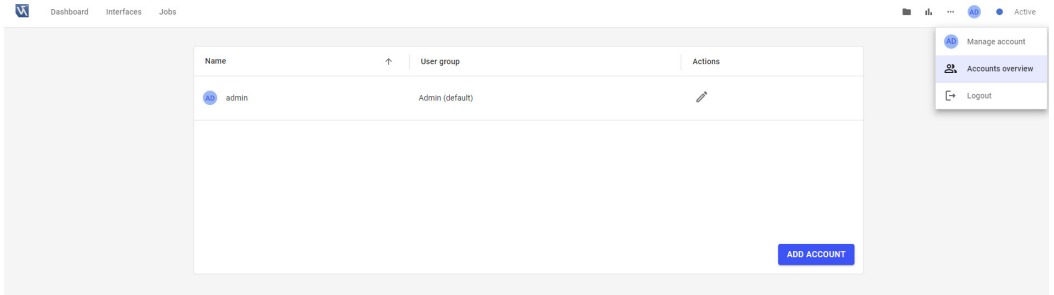
NOTE!

- Change the password of admin (default) to prevent unwanted access on the device.
- The admin (default) account cannot be deleted and it is not possible to change the user group.



The screenshot shows a user management interface. At the top, there are navigation links: "Dashboard", "Interfaces", and "Jobs". On the right, there is a user profile for "admin" with a blue circular icon containing "AD". Below the profile, there are three sections: "Username" with a text input field containing "admin", "Password" with a text input field and a blue "CHANGE PASSWORD" button, and "User group" with a dropdown menu showing "Admin (default)". On the far right, there is a vertical menu with options: "Manage account", "Accounts overview", and "Logout".

Admins and admin (default) can create new accounts, edit and delete other accounts. Setter and Worker can only change the own username or password.

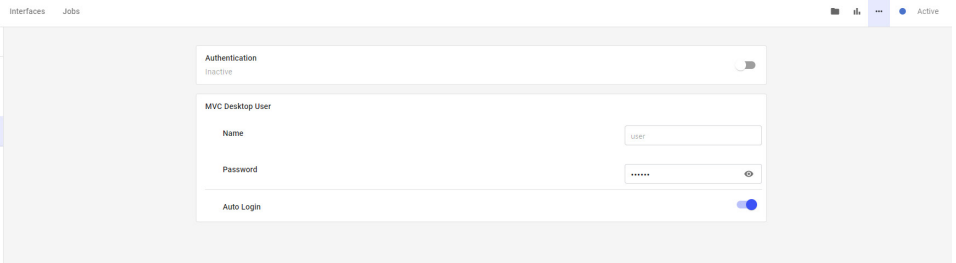


Enter username, password and user group when creating new accounts.

A screenshot of a 'Add new account' form. The form has a title 'Add new account' and four input fields: 'Username', 'Password', 'Confirm password', and 'User group'. The 'User group' field is a dropdown menu currently showing 'Admin'. At the bottom of the form, there are two buttons: a blue 'CANCEL' button and a grey 'CREATE' button.

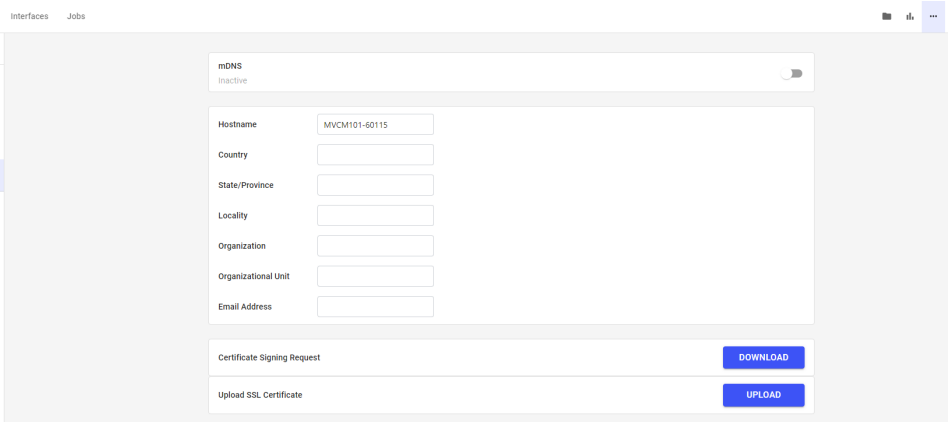
Furthermore, the settings of the MVC Desktop User are shown. Use the Desktop User to login when a monitor is connected directly to the Machine Vision Controller or when using a remote desktop connection e.g. from a Windows PC to the Machine Vision Controller via the LAN interface of the MVC.

- **Name:** Shows the name of the desktop user with the name “user” (not editable).
- **Password:** See and edit the password of the desktop user (default “vision”). The password is only visible if authentication is deactivated or, in case of activated authentication, if user of user group admin or admin (default) is logged in. Changing the setting, requires a software reboot.
- **Auto Login:** Enables or disables automatic login at the MVC after booting if using a monitor directly at the MVC or if connecting via remote desktop connection (by default enabled).



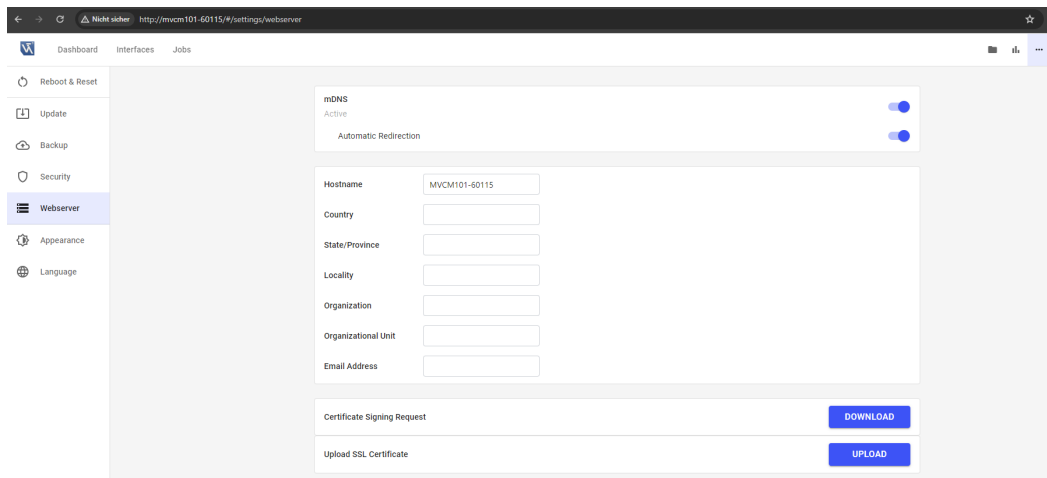
9.8.6 Webserver

The side navigation “Webserver” allows to configure the webserver.



Activate mDNS in order to access the device website via the hostname. By default, the hostname is “article number”-“serial number” (e.g. mvcm101-60115).

Refresh the browser in order to see the automatic redirection of the IP address to the hostname in the address line of the browser (if “Automatic Redirection” is active).



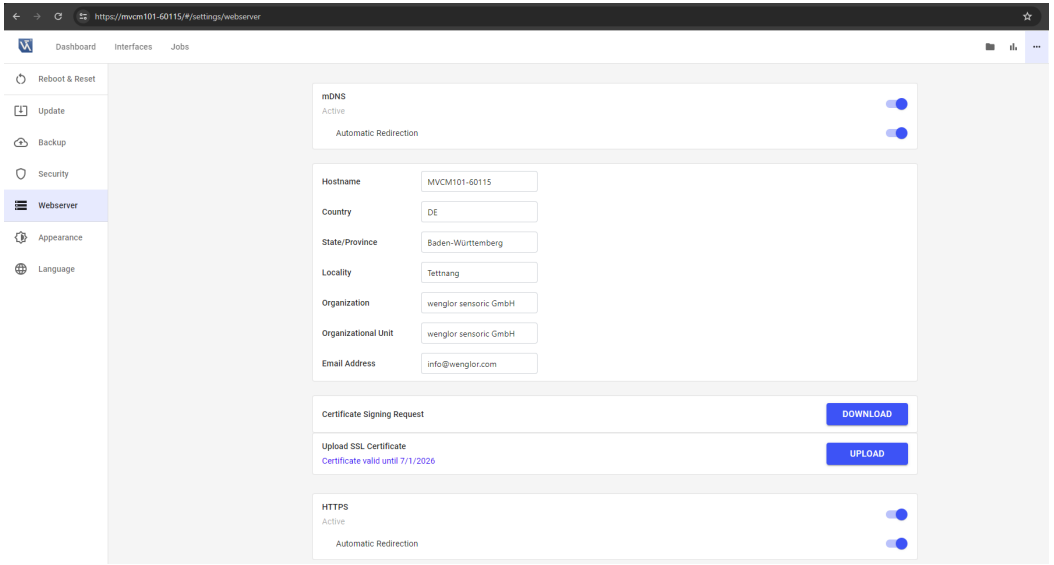
Enter country, state/province, locality, organization, organizational unit and email address before generating the certificate signing request.



NOTE!

For creating the SSL certificate of the Machine Vision Device and in order to add it as trusted device at your PC, please get in touch with your IT department.

After successfully uploading the SSL certificate, the parameter HTTPS appears. Activate it in order to access the device via https. Refresh the browser in order to see the automatic redirection of http to https (if “Automatic Redirection” is active).

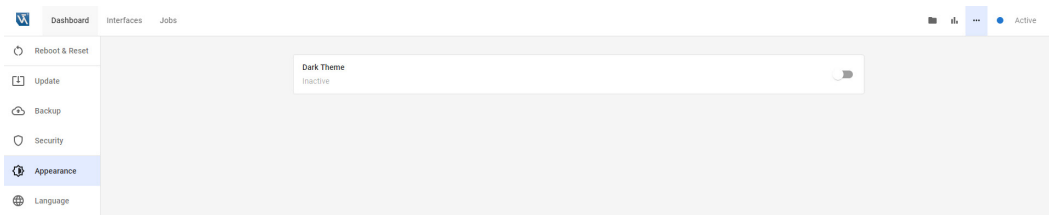


NOTE!

Delete the browser data after deactivating mDNS or HTTPS in order to access again the device website.

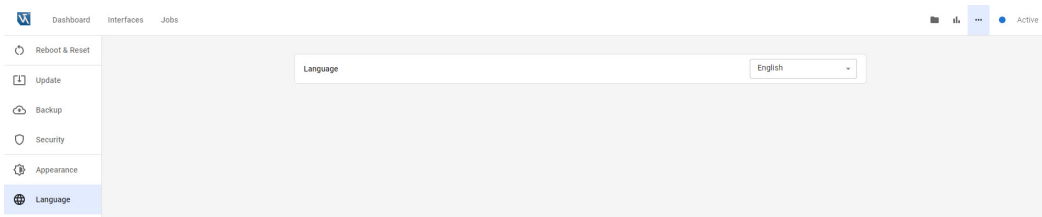
9.8.7 Appearance

The side navigation “Appearance” allows to activate or deactivate dark theme. By default, dark theme is deactivated.



9.8.8 Language

The side navigation “Language” defines the user language of the device website (DE, EN, FR, IT, ES, PT, NL, HU, TR, ZH, RU).



9.9 Device Status

Open the device status in the icon menu bar for further status info. Furthermore, it is possible to download the history of the maximum 50 last device status warnings and errors (automatically reset after rebooting the device).

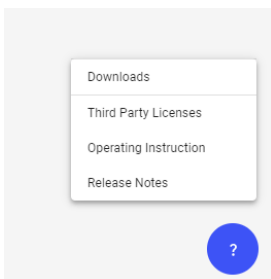


The device status signals the following states:

- Blue: Active (Running)
- Yellow: Warning (e.g. in case of high temperature, high CPU load, high RAM, high storage usage, high LAN or high CAM Ethernet. Typically warning is sent, if CPU load, RAM, storage usage, CAM or LAN Ethernet is bigger than 90% for more than 3 seconds.)
- Red: Error (e.g. in case of a crashed software service)

9.10 Help Button

Open the help button to access further information.



- Downloads: Opens a new tab in the browser with the product detail page of the device containing all available downloads on the wenglor website (only available with internet access).
- Third Party Licenses: Opens a new tab in the browser to access the third party licenses of the device (no internet access necessary).



NOTE!

Third party software licenses are also available on the wenglor website:
<https://www.wenglor.com/License/s/License>.

- Operating Instructions: Opens the operating instructions of the Machine Vision Device in a new tab of the browser.
- Release Notes: Opens the release notes of the Machine Vision Device in a new tab of the browser containing the changes between different firmware versions.

10. Software wenglor uniVision 3

The uniVision jobs are parameterized with the uniVision software (version 3.3.0 or higher). For details on the parameterization of the MVC, please refer to the operating instructions of the wenglor uniVision 3 software. For more information, see: <https://www.wenglor.com/p/DNNF023>

11. Maintenance Instructions

NOTE!



- This wenglor Machine Vision Controller is maintenance-free.
- Cleaning and inspection of the plug connections at regular intervals is advisable.
- Do not clean with solvents or cleansers which could damage the device.
- The product must be protected against contamination.

12. Proper Disposal

wenglor sensoric GmbH does not accept the return of unusable or irreparable products. Respectively valid national waste disposal regulations apply to product disposal.

13. Change Index of Operating Instructions

Version	Date	Description	Compatibility
1.0.0	07.10.2024	Initial version of the operating instructions for the MVC Machine Vision Controller	Firmware MVC 1.0.0 Software: wenglor uniVision 3.3.0
1.0.1	06.11.2024	Small bugfix and adaptations	Firmware MVC 1.0.2 Software: wenglor uniVision 3.3.2
1.1.0	30.01.2025	Update description for version 1.1.0 of MVC firmware	Firmware MVC: 1.1.0 Software: wenglor uniVision 3.4.0
1.2.0	14.05.2025	Updated description for version 1.2.0 of MVC firmware	Firmware MVC: 1.2.0 Software: wenglor uniVision 3.5.0
1.3.0	20.08.2025	Updated description for version 1.3.0 of MVC firmware	Firmware MVC: 1.3.0 Software: wenglor uniVision 3.6.0
1.4.0	15.01.2026	Added sections „5.5 Connection Options“ and „6.3 Setting up Automatic Program Start“	Firmware MVC: 1.3.0 Software: wenglor uniVision 3.6.0

14. Appendix

14.1 Declarations of Conformity

Declarations of conformity can be found on our website at www.wenglor.com in the product's separate download area.

wenglor sensoric GmbH

wenglor Straße 3

88069 Tett nang

GERMANY

Phone: +49 7542 5399-0

info@wenglor.com

For further wenglor contacts, please see www.wenglor.com

14.2 Third Party Licenses

Third party licenses used on the MVC Machine Vision Controller are available via the device website (see section „9.10 Help Button“) or on the wenglor website (requires internet access) at:

<https://www.wenglor.com/License/s/License>