

EN

BB1C5xx

Control Unit



Operating Instructions

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1. General

1.1 Information Concerning these Instructions

- These instructions apply to the products Control Unit BB1C5xx
- 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 control unit receives data from the imaging devices (e.g. Machine Vision Cameras or 2D/3D sensors) via an Ethernet interface, evaluates the data and reads out results via various interfaces. The control unit'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.
-

2.5 General Safety Precautions



CAUTION!

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

Danger of burns if the control unit'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 sensor against contamination and mechanical influences

2.6 Approvals and protection class



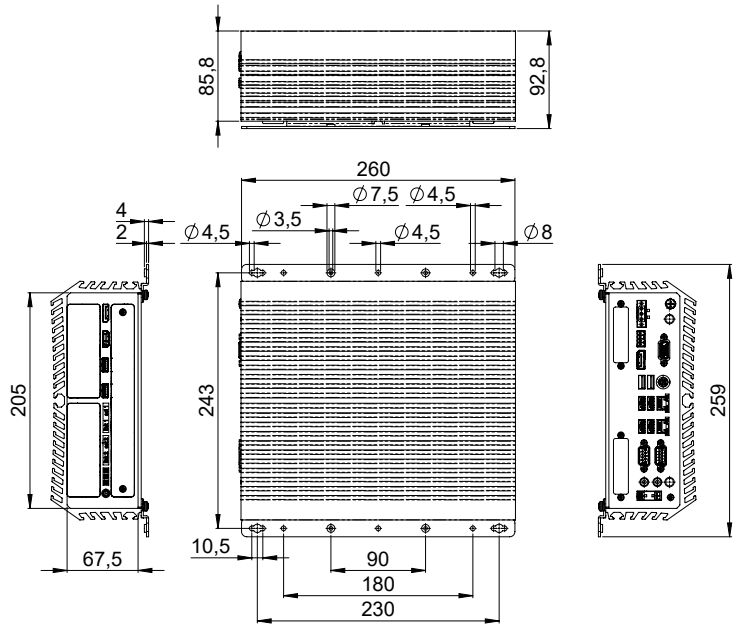
3. Technical Data

3.1 Control Units with Industrial Ethernet

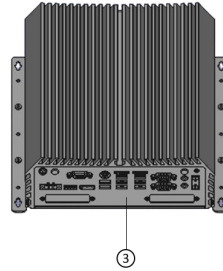
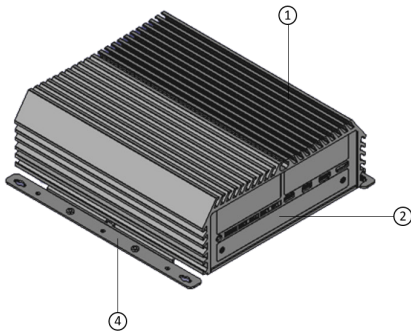
Technical Data	Order No					
	BB1C501	BB1C502	BB1C503	BB1C504	BB1C505	BB1C509
Electrical Data						
Supply Voltage	9...48 V DC					
Current consumption (Ub = 24 V)	< 5 A					
Temperature range	0...45 °C					
Number of USB 2.0 ports	2					
Number of USB 3.0 ports	6					
Number of Gigabit Ethernet RJ45 ports	2					
Number of Industrial Ethernet RJ45	2					
Number of DisplayPort interfaces	2					
Number of VGA ports	1					
Number of PS/2 ports	1					
Number of HDMI ports	1					
Mechanical Data						
Housing	Aluminium					
Weight	5 kg					
Degree of Protection	IP40					
Wall Mount	yes					
Function						
Profile Analysis	Yes	Yes			Yes	Yes
Combined Height Profile		Yes			Yes	
Seam Tracking						Yes
Robot interface						Yes
Image analysis			Yes	Yes	Yes	
1D/2D code reading				Yes	Yes	
Image-based pattern matching				Yes	Yes	
General Data						
Software	uniVision Profile	uniVision Profile Extended	uniVision Image	uniVision Image Extended	uniVision All in One	uniVision Profile Seam Tracking
Processor	Intel Core i7					
Cycle rate	4,4 GHz					
RAM	16 GB					
Hard disk	128 GB SSD					
Interfaces						
Ethernet	Yes					
Profinet IO, CC-C	Yes					
EtherNet/IP	Yes					
Digital I/O	No					

Technical Data \ Order No	BB1C501	BB1C502	BB1C503	BB1C504	BB1C505	BB1C509
USB port	Yes					
VGA port	Yes					
HDMI port	Yes					
DisplayPort connection	Yes					

3.2 Dimensional Drawings



3.3 Layout



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

3.4 Scope of Delivery

- Product
- Mounting kit for wall mounting

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

DNNF012	uniVision for Linux	Configurable standard software
DNNF020	uniVision for Windows	Configurable standard software for Windows
DNNP011	VisionApp 360 plugin	Software plugin for combined point clouds of several 2D/3D profile sensors

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 control unit 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!

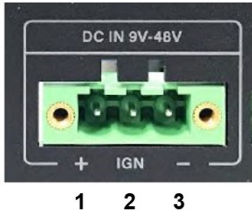
Personal injury and damage to the product may occur.

- 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)

5.4 Interfaces

5.4.1 Back 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	Not supported



NOTE!

The monitor must be connected to the Control Unit before the control unit is booted. Otherwise, the monitor may not be found by the device.

5.4.2 Front Panel

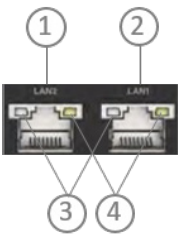


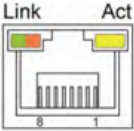
No.	Description	Explanation
1	Voltage supply	9...48 V DC
2	FAN	Not supported
3	VGA	VGA socket connector for monitor
4	Displayport	Displayport socket connector for monitor
5	PS/2	One PS/2 port for mouse or keyboard
6	USB 2.0	Two USB 2.0 ports for mouse, keyboard, external hard disk etc.
7	USB 3.0	Four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



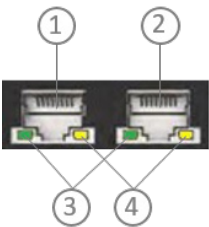
NOTE!
The monitor must be connected to the Control Unit before the control unit is booted. Otherwise, the monitor may not be found by the device.

5.4.3 Network Interface Connectors



Number	Description	Color	State	Meaning	
1	LAN2				
2	LAN1				
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	

5.4.4 Industrial Ethernet Connectors



Number	Description	Color	State	Meaning
1	CH0			
2	CH1			
3	LINK	Green	On	Ethernet connection is available
		Off	Off	No Ethernet connection available
4	ACT or RX/TX	Yellow	Flashing	Control unit sends or receives Ethernet frames
		Off	Off	Control unit sends or receives no Ethernet frames

6. Software

The control unit 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: <https://www.wenglor.com/en/uniVision-Software-for-Sensor-Parameterization/s/Themenwelt+Software+uniVision>.



NOTE!
The Control Units BB1C5xx are only supported starting with firmware 2.6.1.

7. Maintenance Instructions



- NOTE!**
- This wenglor Control Unit 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.

8. 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.

9. Appendix

9.1 Change Index, Operating Instructions

Version	Date	Description/Change
1.0.0	24.07.2023	Initial version of the operating instructions
1.1.0	11.10.2023	Some bugfixes in section „3.1 Control Units with Industrial Ethernet“

9.2 EU Declaration of Conformity

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