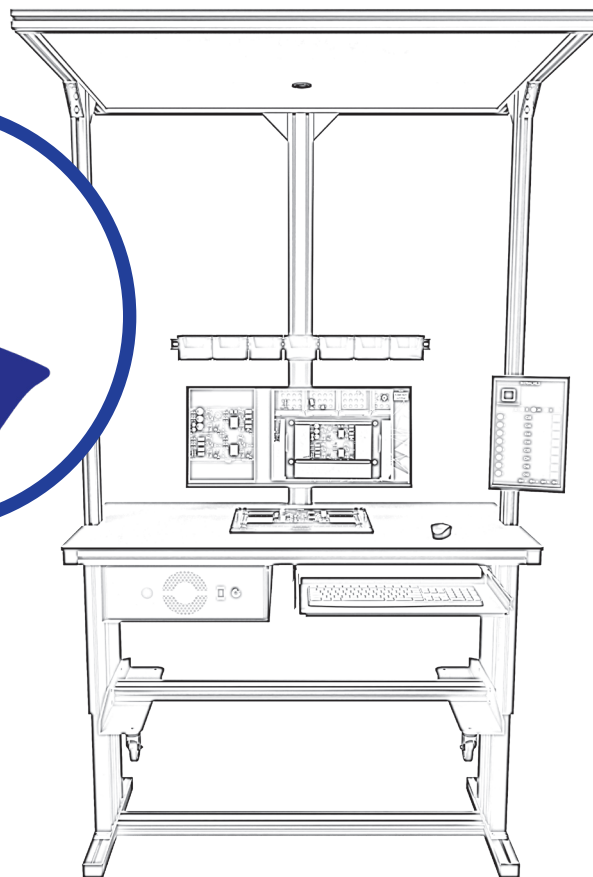


Smart Klaus Assembly instructions & commissioning



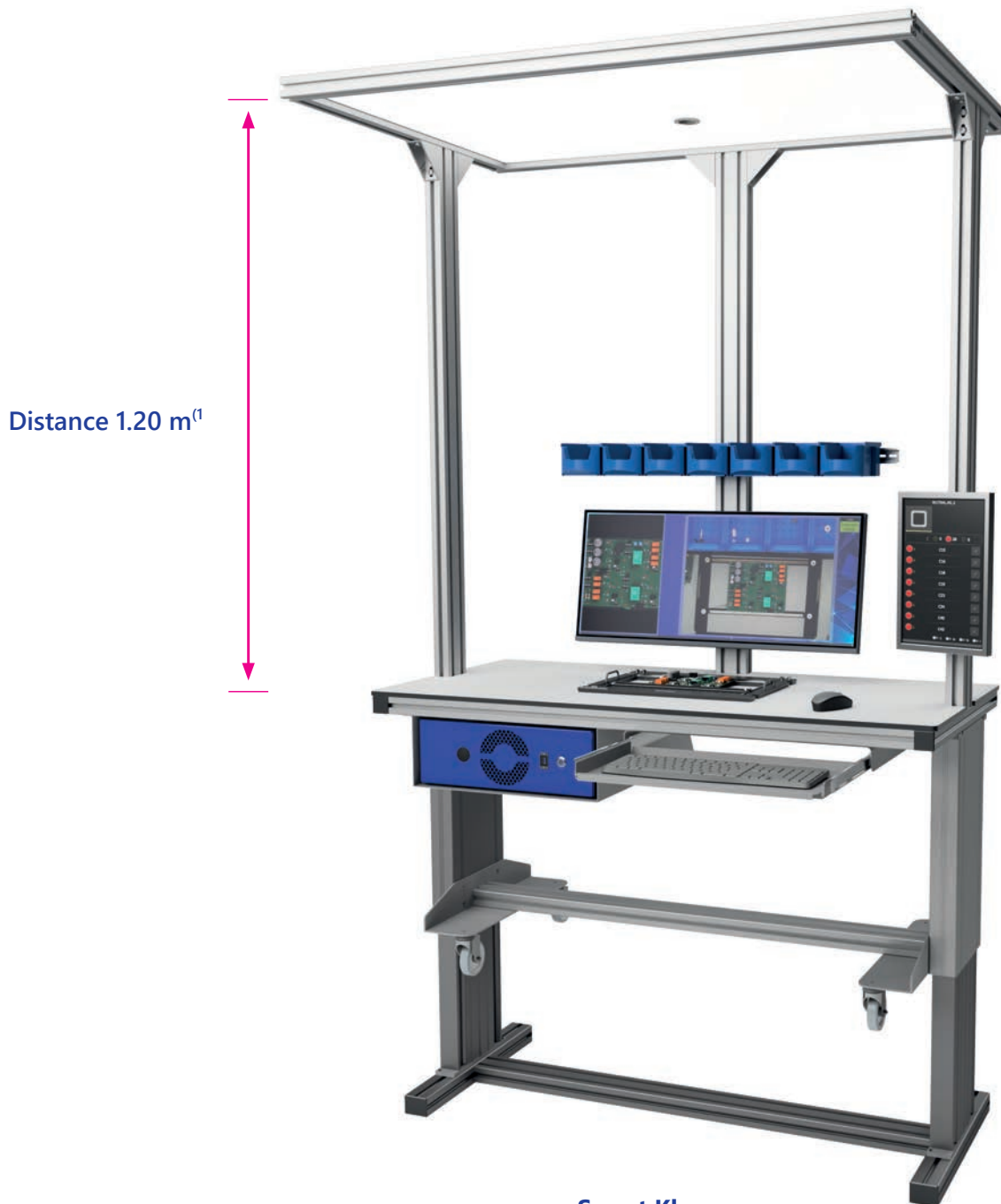
You can find the instructions at
www.optimum-gmbh.de/en/downloads

As of 2023-03 This document is subject to errors and changes.

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Note:
First check the contents of the delivery against the delivery bill!



Distance 1.20 m⁽¹⁾

Smart Klaus
Example configuration

⁽¹⁾ The standard distance can be varied individually depending on the project and the products to be monitored.

**CAUTION:**

Please remove the protective caps only just before mounting the components.

1.

Camera with protective cap



Lens with protective caps

2.

Mount the camera on the bracket.

3.

Remove the protective cap of the camera and the upper protective cap of the lens and screw the lens together with the camera.

4.

Attach the camera to the slotted holes at the highest position.

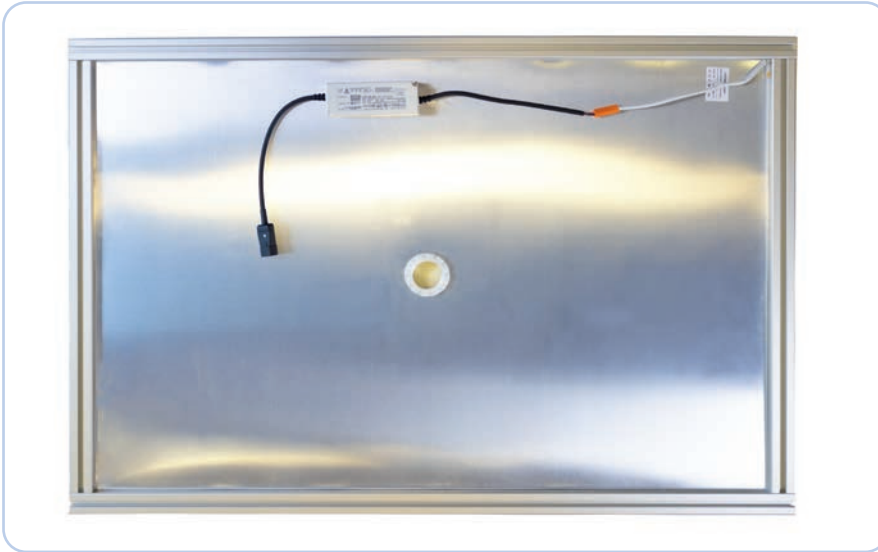


Figure:
Top side of the LED panel



5. Remove the cuff nut.



6. Attach the pre-assembled camera mount (step 4) to the LED panel using the cuff nut.



7. Remove the protective cap from the lens and then lower the camera.



8. Attach the camera cable.



Figure: Ready-mounted camera on LED panel.

9.



6 pieces



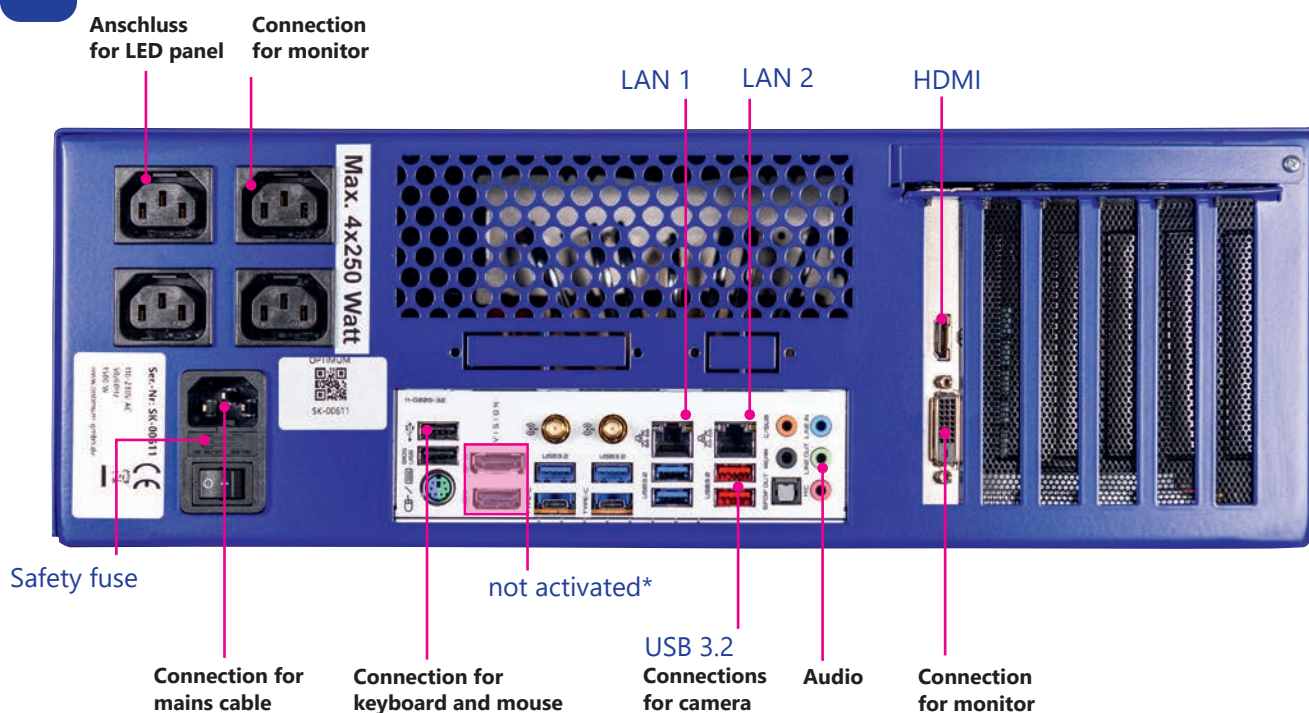
6 pieces

Mount the LED panel to the workstation using the screws and hammer nuts



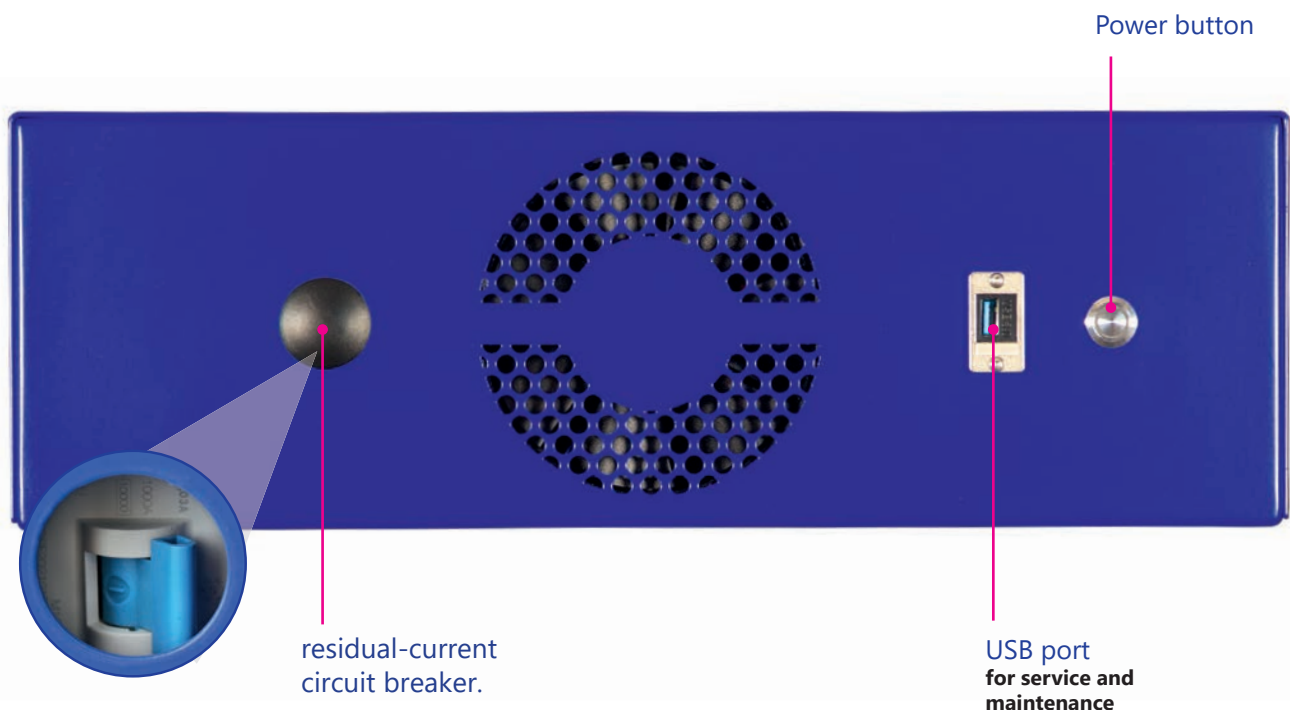
CAUTION: The panel must be mounted rigidly and free from vibrations.

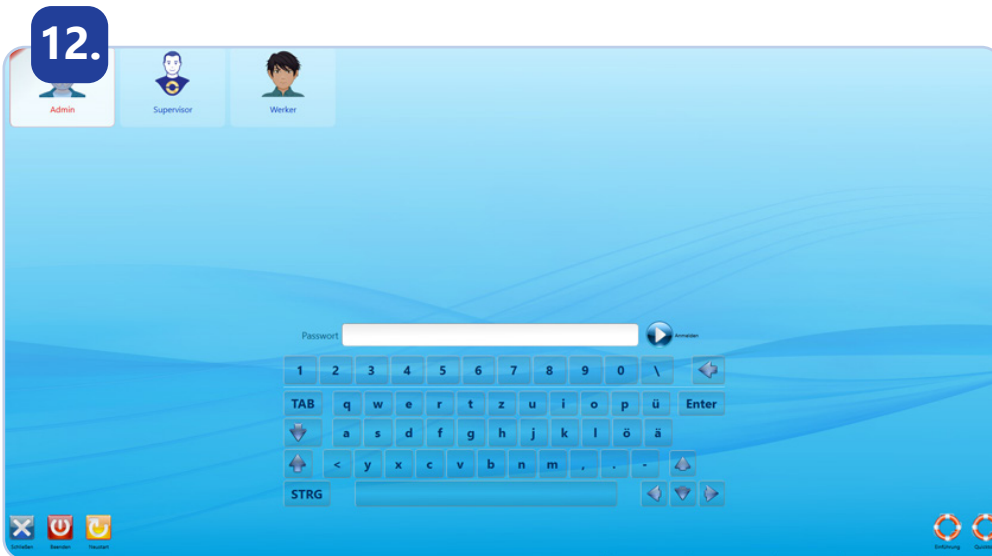
10.



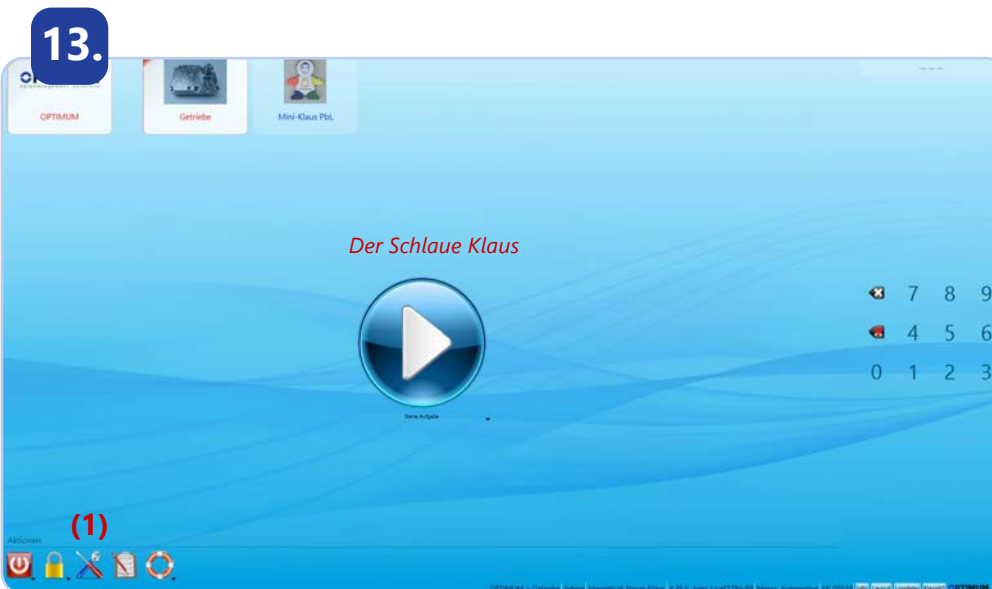
Carry out the wiring of the components according to the figure above.


11.





Start the computer (power button, Fig. 11): LED panel and monitor turn on.
As soon as the login screen appears, log in as admin. The admin password on delivery is: „klaus“



The start screen appears. Select the configuration button.  (1)



Select the menu item „Global“ (1) on the left side under Navigator. Select the camera to be calibrated under Cameras (2): In the example: „TIS“ (3). The camera configuration menu on the right side is displayed. Click the button „Assitant“ (4) and follow the instructions of the calibration wizard.

A calibration tutorial is available at www.optimum-gmbh.de/en/support

12.

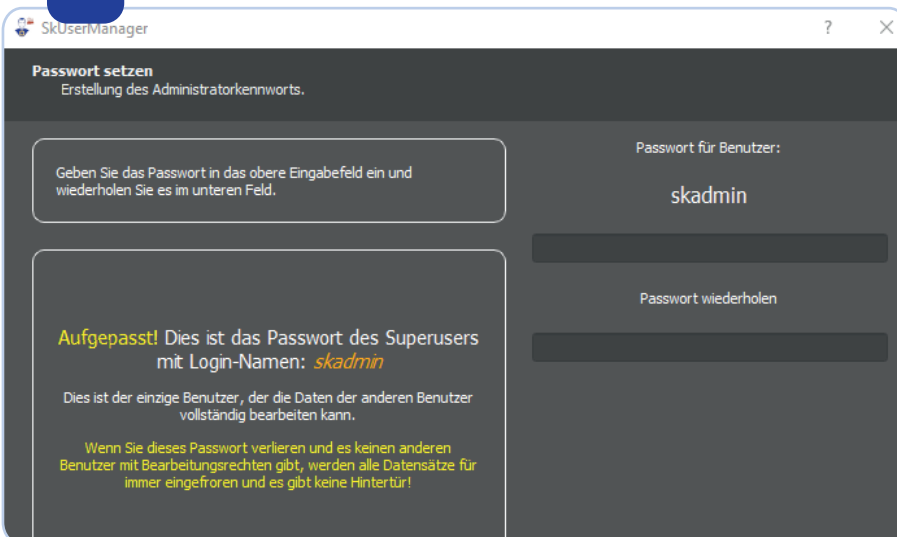


Start the the computer (power button, image 11):
The lamp and monitor will turn on.

The first time the computer starts, the SK User Manager opens up: Smart Klaus requires a database (internal DB).

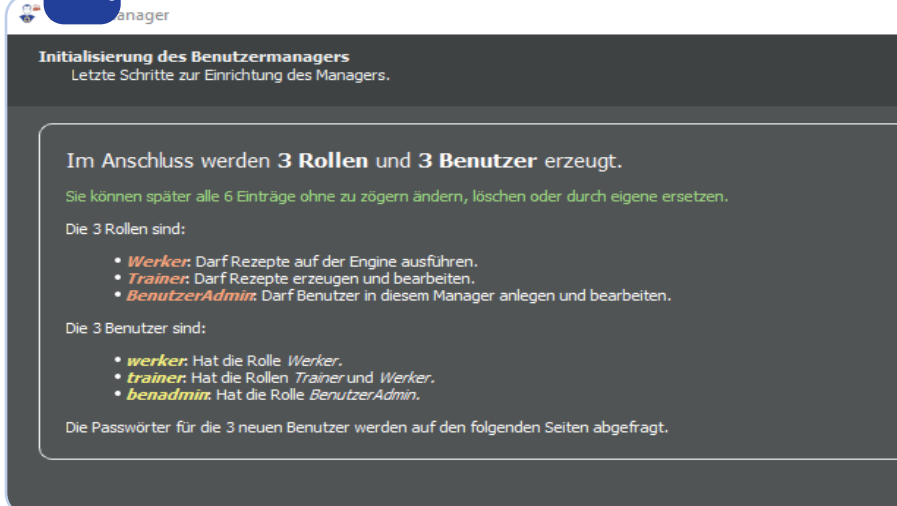
If the configuration is different, please contact customer service.

13.



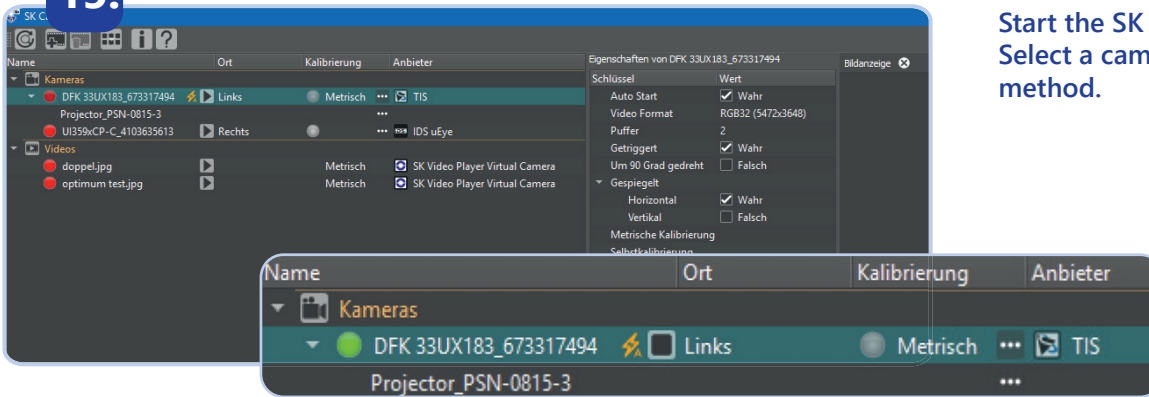
To create the 4 standard users, you will first be asked for „Skadmin“ (general admin access).
Set a password for the SKadmin.

14.



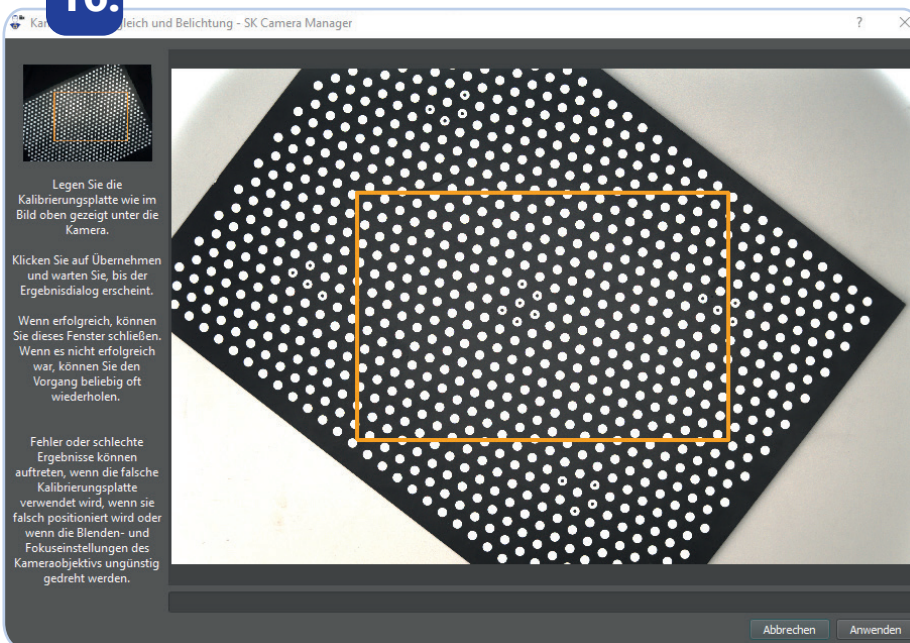
Finally, set up a password for each of the *worker*, *trainer* and *usramin* respectively.

15.



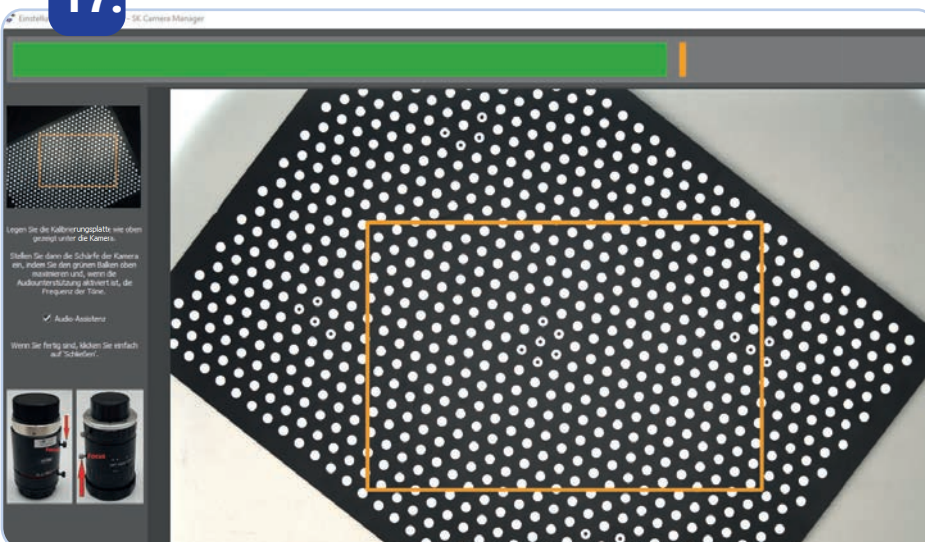
Start the SK Camera Manager. Select a camera and a calibration method.

16.



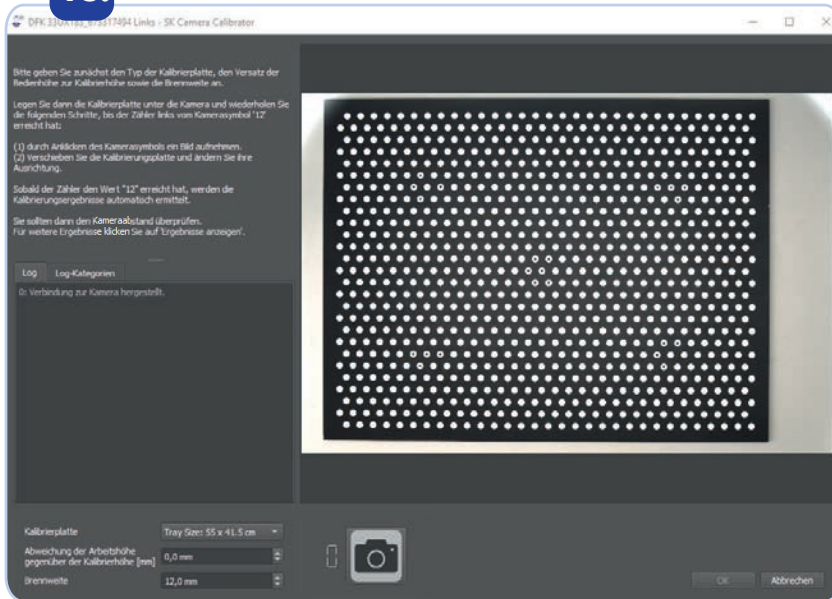
Start with the self-calibrating: the system adjusts the brightness of the image automatically. Follow the instructions as shown in the left window.

17.



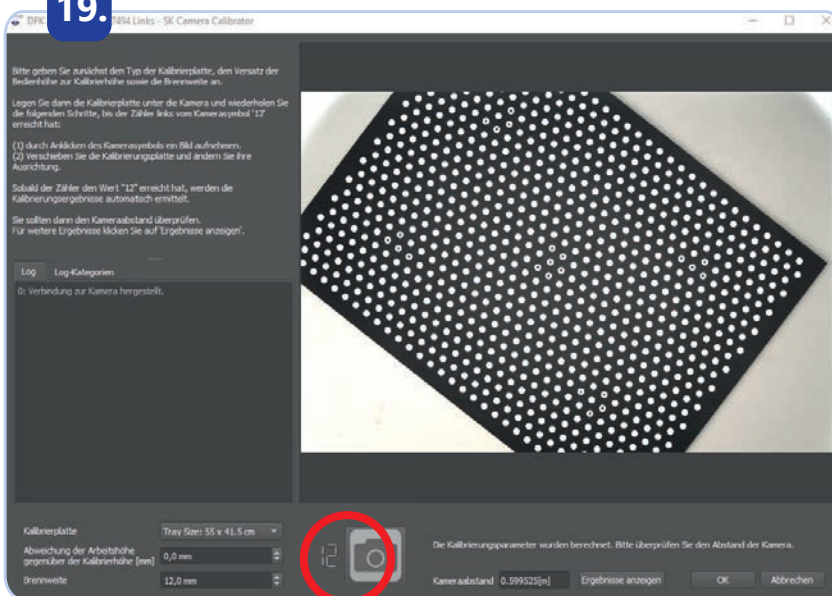
Focus adjustment: Here the system gives feedback via a green band and sound. You should also trust your own eye.

18.



Metric Calibration:
Metric calibration should be performed with focus and white balance set (self-calibration).

19.



Follow the instructions in the window until at least the value „12“ is reached.

Symptom	Troubleshooting
Smart Klaus does not start.	<ul style="list-style-type: none"> • Check all plug connections. • Check the switch position on the power switch on the back of the Smart Klaus. • Check the residual-current circuit breaker under the rubber cap on the front of Smart Klaus. When set correctly, the switch points to the right. (see p.6) • Disconnect the power cable and check the safety fuse on the power switch.
The camera image is very slow.	<ul style="list-style-type: none"> • Cause: The camera is only recognized as a USB 2.0 device. Check the cable connection between the camera and the computer. This must be plugged into USB high-speed slot (red or blue). • USB extensions can reduce the speed. Only use the included camera cables (max. 5 m)! <p>For older systems only: An outdated version of the camera driver can lower the speed. Please contact our support!</p>
No image is displayed. The screen remains black.	The monitor does not wake up from standby mode. Turn the monitor off and on.

If the fault cannot be rectified, contact our support:
support@optimum-gmbh.de
 Phone: +49 721 570 44 95-70, Monday - Friday, 8:30 a.m - 4:00 p.m CET

Designation	Source of supply	Typical Delivery times
Industrial computer	Optimum	4 Weeks
Industrial camera 20MP	Optimum	4 Weeks
Industrial camera 42MP	Optimum	4 Weeks
Focus lens (focus adjustment)	Optimum	4 Weeks
LED Panel 120 cm x 80 cm	Optimum	4 Weeks
LED Panel 62 cm x 62 cm	Optimum	4 Weeks
Camera cabel 1,5/3/5 m	Optimum	4 Weeks
Lens, different focal lengths: 8 mm 12 mm 16 mm 25 mm 50 mm	Optimum	4 Weeks
Wireless keyboard/mouse	Optimum	4 Weeks
Kontrollmonitor 29"	Optimum	4 Weeks
TouchMonitor 21.5"	Optimum	4 Weeks
Control panel (touchmonitor)	Optimum	4 Weeks
Laser projector	Optimum	8 Weeks
Cold appliance extension 3/5 m	Optimum	4 Weeks
Calibration plate	Optimum	4 Weeks
Label printer	Optimum	4 Weeks
Digital I/O module	Optimum	4 Weeks
DMX controller	Optimum	4 Weeks

If you have any questions, please contact OPTIMUM customer service:
Phone : +49 721 570 44 95-70, Mon - Fri 8.30 a.m. - 4.00 p.m. CET
support@optimum-gmbh.de

Original operating instructions
– hereinafter also referred to as work instruction –

Please also observe the enclosed operating instructions, which provide you with details on the usage of the device.

Device designation: Smart Klaus

SK-00100 ...

OPTIMUM datamanagement solutions GmbH, Neureuter Straße 37a, D-76185 Karlsruhe

1 Information

1.1 Liability, warranty, copyright, licensing right

Limitation of liability

If the following information and warnings, including the supplementary operating instructions, are not observed, liability for loss or damage of any kind on the part of Optimum shall be excluded – to the extent permitted by law. This shall also apply, in particular, to material damage and personal injury.

Warranty

The warranty period for products, accessories and services is 24 months.

All product data, specifications, drawings, etc., correspond to the current status on the specified date of creation. For the purpose of technical progress and product optimisation, details of our modules and accessory components are subject to change at any time without notice.

Despite the great care taken in the preparation of this document, the possibility of misprints, typing errors or transcription errors cannot be excluded. We cannot accept liability for such errors.

Copyright/licensing right

The product and its usage, including the software content, are subject to the valid copyright and licensing right of the manufacturer.

1.2 Brief description of the system

The Smart Klaus device/system is a base unit for systems for image recognition and is used for the connection of the required image recognition modules (camera, lighting, monitor, etc.), partly with internal drivers and partly with external drivers (depending on further system specifications beyond the Smart Klaus device).

Details of setting and operation can be obtained from the additionally enclosed operating instructions.

1.3 General information

The system must only be operated for the purposes described in this document.

Modifications, or the use of components other than those described, result in the loss of warranty and the manufacturer shall assume no liability. This shall also apply in cases where unadapted peripheral equipment is used. In cases where modifications are unavoidable, the manufacturer must be consulted.

Further information on commissioning, installation and connection of the machine can be obtained from the operating instructions.

The system does not produce any critical/significant sound emissions (<70 dB(A)).

2 Safety instructions

All persons tasked with system operation are required not only to read, but also to understand this work instruction. The safety instructions are prescribed by law. They serve to ensure occupational health and safety and accident prevention.

The work instruction, in conjunction with the operating instructions, makes safe operation possible and helps in the elimination of possible malfunctions.

The work instruction must be stored near the system and be available to operating personnel at all times.

Safety instructions can be found in these operating instructions at places where there is a particular danger to life and limb. However, these operating instructions are not intended to replace generally applicable safety regulations, e.g. accident prevention regulations.

Meaning of the symbols:

The following safety symbols identify places in the text that warn against hazards and sources of danger. Please familiarise yourself with these symbols.



Caution: Nonobservance of this warning can result in injury or danger to life and limb and/or damage to the device.



Caution, voltage: Dangerous electrical voltage!
Nonobservance of this warning can result in injury or danger to life and limb.



Note: Materials/operating fluids that must be handled and/or disposed of in compliance with the law.



Note: Appears before explanations or cross references that relate to other text passages in the operating instructions.



Note: Details that require special attention.

2.1 Obligations of the operating company

The safety of the system can only be guaranteed in practical application if all of the measures this requires have been introduced. The duty to care of the operating company of the system means that it is responsible for planning these measures and for checking their implementation.

The operating company of the system must ensure that all persons tasked with the installation, operation and maintenance or repair of the system have read and understood the sections of the work instruction relevant to their work from start to end.

The operating company of the system is responsible for the safety.

This applies, in particular, to

- the physical safety of all persons in the vicinity of the system,
- trouble-free operation of the system.



Safety devices must not be rendered ineffective or deactivated.
Optimum shall not be liable in the event of independent, unauthorized modifications



In their own interest, operating companies are requested to perform a visual inspection of the device once a day. Any possible damage must be eliminated in the correct manner prior to operation.

2.2 General safety instructions



These operating instructions do not substitute generally applicable safety regulations.



The functioning of the safety devices (here, e.g. housings) must be checked during commissioning and maintenance. Under no circumstances should safety devices be deactivated (e.g. through adjustment or overriding). Housings and covers must not be removed during operation.



All mechanical work, such as installation, maintenance and repair, must only be carried out with the equipment de-energised and by a suitably qualified technician or under his/her supervision.

A technician in terms of this work instruction is:

- a person who is familiar with the handling of this device, who has received safety instruction and is thus aware of the associated dangers,
- familiar with the content of the work instruction,
- a person who is trained and authorised to start up and repair such systems.

2.3 Safety instructions for work on electrical systems



All electrical work, such as electrical connection and repair, must only be carried out with the equipment de-energised and by a suitably qualified electrician or under his/her supervision.



For all electrical work, tools with insulation up to the tip must be used (e.g. insulated screwdrivers).



Defective electrical components, as well as defective cables, must be replaced immediately. The system must be shut down until electrical repair is complete. The system must only be started up again after repair.

2.3.1 First aid measures following accidents with electric current

Recognition:



- Muscular cramp as long as exposure to current lasts.
- „Electric marks“: at the points where the current enters and exits the body, burn marks appear
- In certain circumstances, unconsciousness and cardiac arrest are possible

Measures

- Call the emergency number (in Germany 112)

EMERGENCY CALL:

To provide targeted help, emergency services require the following information:



- **WHERE** did the accident happen
 - **WHAT** happened
 - **HOW MANY** injured persons
 - **WHICH** type of injuries, state electrical accident!
 - **WAIT** and do not end the telephone call immediately; wait in case the emergency service have further enquiries.
-
- **Take responsibility for your own safety. Never place your hands into an electric circuit**
 - **Disconnect the electric circuit: actuate the emergency off**
 - **Pull affected personnel away from the power source with non-conductive materials (blanket, wooden stick)**
 - **Speak to, calm down and provide comfort to affected personnel**
 - **Put on protective gloves**
 - **Cover burn wounds with sterile material**
 - **If the person is unconscious and breathing, call loudly for „Help“ to draw the attention of people nearby to the emergency situation**
 - **Recovery position**
 - **While waiting for the emergency service, calm down, comfort and monitor injured personnel and repeatedly check consciousness and breathing**
 - **In case of unconsciousness and lack of normal breathing, perform cardiopulmonary resuscitation**
 - **In case of high-voltage accidents: rescue only by specialist personnel**

3 Transport, assembly, maintenance and troubleshooting



CAUTION! All mechanical work, such as installation, maintenance and repair, must only be carried out with the equipment de-energised and by a suitably qualified technician or under his/her supervision.

3.1 Transport

To transport the system, no special features have to be observed except for the standard specifications on load securing and suitable packaging to prevent transport damage.

3.2 Set-up and connection of the system



The customer / operating company of the system must ensure that the connection is safeguarded by a

3.3 Maintenance instructions

Prior to operation of the device, a visual inspection must always be carried out. Deficiencies or visible irregularities must be eliminated in the correct manner before the device is used. Trigger safety devices, e.g. residual-current circuit breakers, every working day for testing purposes. All checks must be carried out every day.



The manufacturer recommends that a system logbook should be maintained. This permits the easier identification of recurring faults and malfunctions.

To keep the device safe and ready for operation, it is also necessary to carry out an inspection semi-annually.



Prior to carrying out work on the system, it is essential to read and understand chapter 2 „Safety instructions“.



The information in the individual operating instructions of the manufacturers must be observed; see operating instructions.



The work must be performed exclusively by qualified personnel or under the supervision of a qualified person.

3.4 DISPOSAL INSTRUCTIONS – OUR CONTRIBUTION TO ENVIRONMENTAL PROTECTION

Notes on the disposal of the device:

What has to be noted when disposing of the device?

- Commercial disposal of the device is required. Find out which disposal regulations or takeback provisions for the device apply in the country of disposal.
- Correct disposal can allow valuable materials to be supplied for recycling.
- Have the power supply cable disconnected by a specialist company.
- Remove all components that are/were not elements of the device.

USER INFORMATION:

THE UNLAWFUL DISPOSAL OF THE DEVICE BY THE USER CAN RESULT IN A FINE.

WE URGENTLY RECOMMEND DISPOSAL BY THE MANUFACTURER TO MINIMISE THE RISK TO HEALTH AND THE ENVIRONMENT!

4 Appendices

CE Declaration of Conformity
Operating Instructions
Circuit Diagram

Possible measurement records can be requested from the manufacturer as required.

Risk assessment by Lorch Industrial Safety	plant: Smart Klaus base unit (without LED driver, with cold output and fuse protection)	plant manufacturer: Optimum Karlsruhe	date of admission: 2017-01-24	changed on: 2017-07-24
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No.	dangerzone	life phase	endangerment short text	description	Risk (GR)	solution principle	explanation	test criteria comment
1/1	whole plant / device	I	danger due to mass and weight	no great hazards during transport due to mass and weight.	6	K	<ul style="list-style-type: none"> good to handle case, low weight , choose packing accordingly. 	realized by the manufacturer
						S	pay attention to packaging regulations / load handling! notes on/to: <ul style="list-style-type: none"> packing storage 	at customer sites, customer responsibility
		II	danger due to incorrect assembly	danger due to incorrect installation and commissioning only for the device. No hazard for user if used properly.	6	O	assembly and commissioning by company personnel or specially trained operators.	notes operating instructions available
						K	mains plug or safe power supply mounted according to VDE (Professional Association of German Electricians),	realized
					K	encapsulation / closed housing on the system to prevent access to the danger points.	realized	
		III	mechanical hazards	danger due to overturning or similar.	3	K	good stability with appropriate emphasis.	realized

No.	dangerzone	life phase	endangerment short text	description	Risk (GR)	solution principle	explanation	test criteria comment	
1/1	whole plant / device	III	electrical hazards due to direct and indirect contact.	danger due to direct or indirect contact during connecting and wiring, maintenance and troubleshooting.	6	K	electrical equipment, connections and wiring must be carried out in accordance with EN 60204-1 in some cases.	implemented	
						O	<ul style="list-style-type: none"> after repair or replacement of components: measurement and inspection according to EN 60204-1, point 20 or DGUV 3. regular inspection of the electrical equipment according to BGV A3. or . DGUV... inspection of the electrical equipment according to BGV A3. or DGUV... reverse polarity protection cold/warm connection with fault protection switch... 	occupational health and safety requirements Customer responsibility when he exchanges. annual inspection under customer's responsibility checked by manufacturer before delivery. implemented	
		III	hazard due to noise.	no hazard.					
		III	hazard due to vibration.	no danger due to vibration of the equipment.					
		III	danger due to slipping, tripping or falling of persons.	only applies to the installation site, there is no danger from the installation.			select accessibility of the installation accordingly: Execute platforms, stairs, railings and facilities according to standards.	customer side	

Life phases: 1 - 6 risk/effect decreasing.	I transportation, packaging II commissioning, assembly	III operating IV maintenance, retrofitting	V maintenance VI storage, off-site	VII waste disposal VIII interfaces	solution - principle: I information	K structural S protective setup	W warning notice O organisation
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Risk assessment by Lorch Industrial Safety	plant: Smart Klaus base unit (without LED driver, with cold output and fuse protection)	plant manufacturer: Optimum Karlsruhe	date of admission: 2017-01-24	changed on: 2017-07-24
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No.	dangerzone	life phase	endangerment short text	description	Risk (GR)	solution principle	explanation	test criteria comment
1/1	whole plant / device	III	hazard due to substances.	no hazard hazardous substances, production processes no effects on environment and workplace.				
		IV + V	mechanical hazards	danger during maintenance, retrofitting and repair	6	O K	By instructed personnel only. execute housing etc. e.g. burr-free	customer obligation implemented
		IV + V	electrical hazard due to direct and indirect contact.	electrical hazard during maintenance, retrofitting and repair.	6	O	<ul style="list-style-type: none"> after repair or replacement of components: measurement and inspection according to EN 60204-1, point 20 or DGUV 3. regular inspection of the electrical equipment according to BGV A3. or . DGUV... inspection of the electrical equipment according to BGV A3. or DGUV... (IEC) socket see phase III 	customer obligation see above
		VII	hazard from incorrect disposal.	electrical hazard due to e.g. voltage supply.	6	O O	disconnect power plug. disposal according to current legal requirements, if possible return to manufacturer (costs?)	operating instructions operating instructions
		VIII	no hazard.					application question, customer solution

Life phases: 1 - 6 risk/effect decreasing.	I transportation, packaging II commissioning, assembly	III operating IV maintenance, retrofitting	V maintenance VI storage, off-site	VII waste disposal VIII interfaces	solution - principle: I information	K structural S protective setup	W warning notice O organisation
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