



Installation Manual

CAMSCAN 3 5203

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1. General

1.1 Introduction

Normally the surveillance device CAMSCAN series 5203 is assembled, aligned and set for the material to be controlled by the service personnel of PROTECHNA. Additional alignment after the installation is not required.

For exceptions, when the customer is forced to carry out alterations at the surveillance device after putting it into service or when the customer wants to install the device himself, this assembly instruction is provided.

This instruction is provided as addition to the instruction manual for the surveillance device CAMSCAN series 5203. Settings carried out with the integrated keyboard are not mentioned particularly in this instruction. For all settings carried out with the integrated keyboard, please refer to the instruction manual.

Please check first - before you check the signals of the cameras - the construction measurements of the surveillance device and correct them if necessary.

The order of these instructions corresponds to the chronological sequence of the basic set-up of the **standard surveillance device CAMSCAN series 5203 with two cameras**. If you should not have any experience with the set-up of the device, please follow these instructions in the described order.

Assembly Service

We strongly recommend that at least the first assembly of PROTECHNA units should be carried out by one of our service technicians. This will ensure that the customer will benefit from a precise assembly and setting of the device as well as instruction on the correct method of use.

This assembly service is available at minimal cost and normally available everywhere. Overseas customers should make contact with the relevant PROTECHNA agent in order to get details of service and assembly.

Service

Service technicians are available for periodic maintenance and also for special requirements at minimal cost. However, very often small problems can be solved by a telephone call or a message without the need of a visit by the service technician.

For further information please contact:

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1.2 Safety advice

1.2.1 Installation by customer

If customers perform their own assembly, they are responsible for professional execution that corresponds to the safety guidelines.



Mechanical assembly must only be carried out by a skilled mechanic. Safety shoes must be worn to protect against falling parts. The machine must be switched off and secured against accidental restarting.



The electrical connection must only be carried out by suitably qualified technical personnel. Before electrical connection, you must make absolutely sure that there is no danger of coming into contact with any parts that might carry live electricity.

1.2.2 Before placing the device into operation

Please carefully read the following instructions for your own personal safety as well as the operational security of the equipment.

- Always follow all warnings and instructions which are shown as direct advice or mentioned, as well as any in this instruction book.
- Before any cleaning, removing or replacing any part, the device must always be disconnected from the power supply. For cleaning, no liquid cleaning agent or sprays are allowed, instead only a moist cloth must be used.
- Never use the equipment in areas where dangers are present, where water or other liquids could enter the device.
- The mounting position for the device must always be stable, as strong vibration could cause the unit to fall and be badly damaged.
- Always make sure that the correct voltage rating is used to match the power supply.
- Never try to push any objects through any openings in the device, as the interior voltage could cause short circuits or electrical shocks.
- With the exception of the detailed information in the instructions, you should never attempt to undertake any repair work yourself, otherwise you could place yourself in danger from contact with high voltage parts.
- When you have decided on the position of the device, please do not forget, that both of the stand feet must be firmly anchored to the floor. To do this, holes must be drilled into the floor and then provided with floor plugs. Please make sure that no electric wires or other lines are underneath the stand feet.
- Please keep in mind, that the lamp housings can get hot.
- Please make sure that the lamp housings are cooled down before you clean the glass covers.
- Please make sure that the lamp housings are cooled down before you change the light bulbs.

2. Mechanical installation

2.1 Components of the unit

- A mounting frame, complete with holders and foot plates
- Traverse containing one or more cameras (dependent on the material and the surveillance width)
- Lamp(s), the mounting position depends on the range to be surveilanced
- A covering plate, to avoid unwanted reflections from the underside of the framework and also from the floor
- A control unit, complete with swivel bracket
- As option: an external matrix display with installation material
- Various connection cables, as well as mounting equipment

Recommendation:

We strongly recommend that at least the first installation of the CAMSCAN device is carried out by one of our technicians.

This will ensure that the unit is mounted and set-up in its optimum condition and will mean that your personnel receive all the important information relating to the fault free operation of the unit.

This assembly service is available at minimal cost and normally available everywhere.

Overseas customers should make contact with the relevant PROTECHNA agent in order to get details of service and assembly information.

2.2 General installation sequence

Use the below drawings "5203-05-070_01" for details of the installation.

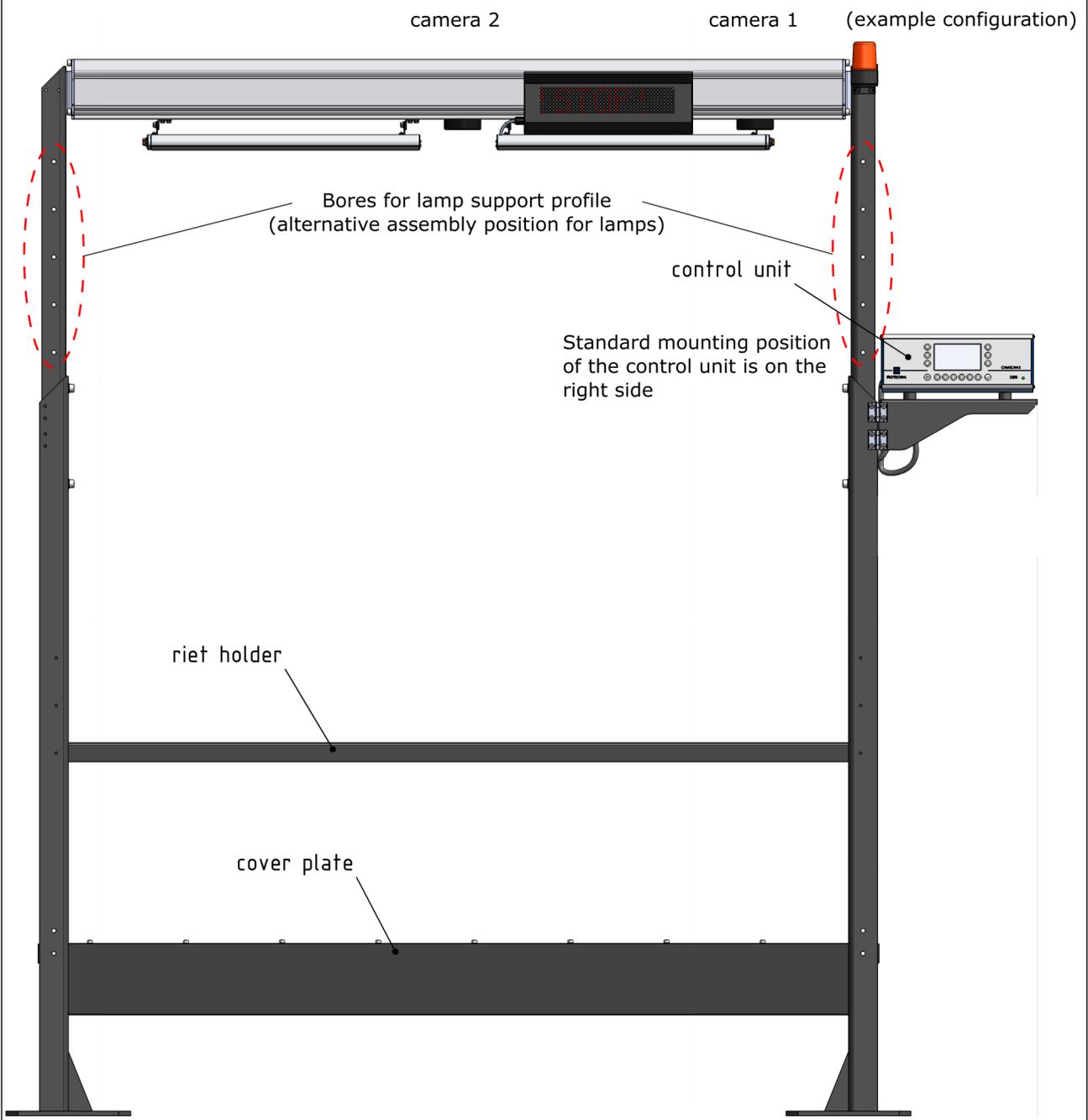
- Setup the mounting frame by assembling the left and right stand feet, the traverse, the covering plate and the reed holder using the concerning fitting sets. It is absolutely necessary that the feet of the mounting frame are securely screwed into the floor, in order to make sure that the total device is sufficiently stable.
- Complete the traverse with the optional matrix display.
- For CAMSCAN $\leq 50''$: Fix the lighting to the traverse using the concerning fitting sets, see following Drawing "Montagevarianten".
- Fix the traverse to the mounting frame according to the distance table (see chapter 2.3), using the concerning fitting sets.



The distance between the lighting and the yarn sheet should be approx. 700 mm. For systems wider than 50" there is an additional lighting support available.

- For CAMSCAN >50": Use the "alternative assembly position for lamps", see the below drawing. Fix the lamps to the lamp support (equally distributed in relation to the yarn sheet), see below drawing "Montagevarianten". Then, install the support to the mounting frame using the concerning fitting sets.
- Attach the control unit to the mounting frame using the concerning fittings.
- Install the electrical wiring referring to chapter 3
- Perform the initial operation referring to chapter 4
- Setup an article referring to separate CAMSCAN operation manual

Standard mounting positions of Cameras: Front view in direction to the creel

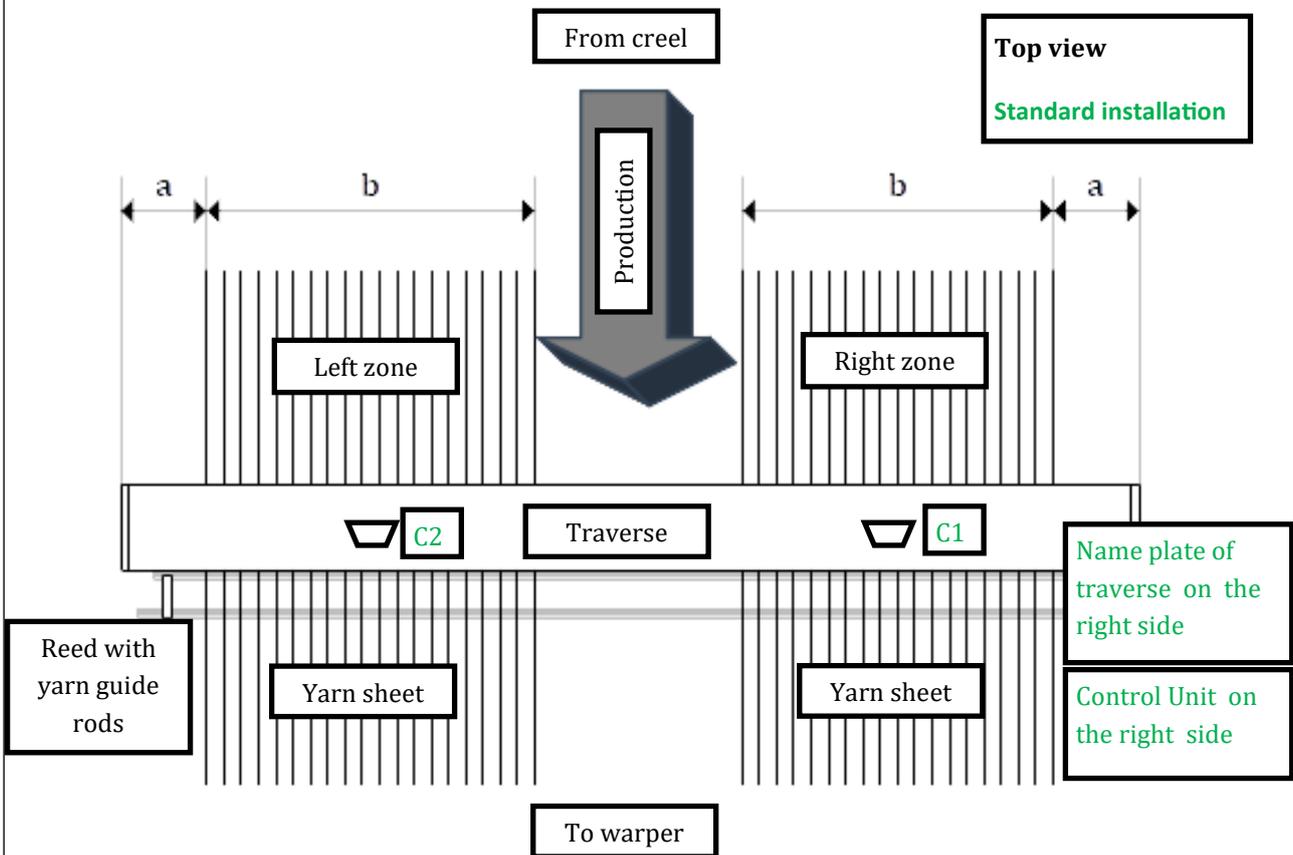


2.3 Positioning of the mounting frame above the yarn sheet

If the complete width of the yarn sheet is not used at the moment, please simulate this with additional threads.

Do position the mounting frame in the middle above the maximal possible width of the yarn sheet. I.e. the distance to the stand feet has to be equal on the left and the right side (distance “a” in the below drawing).

Important! Please write down the measures **a** and **b** for both zones, so that it is possible to exactly re-position the reed when a reed change has been necessary.



a = Distance from the frame to the first / last (possible) thread of the yarn sheet of the left / right zone

b = Maximal possible width of the yarn sheet of the left / right zone

2.4 Adjusting of the traverse height

The height of the traverse over the yarn sheet depends on the width of the yarn sheet. Please check with the help of the following table whether the height is adjusted correctly respectively adjust the correct height.

The indicated height markings refer to *one* camera. If the surveillance device should have 2 cameras, the height markings refer to each individual camera (zone). In this case the inspection area for each camera is half of the maximum possible width of the yarn sheet.

If at the present time, the maximum possible width of the yarn sheet is not being used, please mark it with the help of additional threads.

Please note that when working with a 2 zone device, a parting space of 25 mm (min. 5 mm) should be present in the middle of the yarn sheet. This parting space is necessary to avoid that any threads are inserted in the overlapping area of the two cameras. Should it be possible to insert threads in this overlapping area, then double counting is possible, which leads to a malfunction of the device.

The size of approx. 25 mm for this parting space is normally established automatically. To avoid that threads are inserted in the area of the parting space it is suggested to take out one lead of the reed.

The height adjustment is carried out with the help of the side frame.

Yarn sheet width (zone) in mm	Distance yarn sheet to lower edge of traverse in mm	Yarn sheet width (zone) in mm	Distance yarn sheet to lower edge of traverse in mm
380	565	800	1195
400	595	820	1225
420	625	840	1255
440	655	860	1285
460	685	880	1315
480	715	900	1345
500	745	920	1375
520	775	940	1405
540	805	960	1435
560	835	980	1465
580	865	1000	1495
600	895	1020	1525
620	925	1040	1555
640	955	1060	1585
660	985	1080	1615
680	1015	1100	1645
700	1045	1120	1675
720	1075	1140	1705
740	1105	1160	1735
760	1135	1180	1765
780	1165	1200	1795

2.5 Exact positioning of the camera and lighting

The positioning of the cameras and the lighting depends on the path of the yarn sheet in the surveillance area. The positioning is decisive for the later adjustment of the optimal glancing angle between the camera and the material being controlled.

The distance between the lighting and the yarn sheet should be approx. **700 mm**. However, the distance also depends on the material being used. The distance between the lamps should be chosen in such a way, that an even illumination of the yarn sheet is ensured.

The correct adjustment of the CAMSCAN device is described in chapter 4.5. of this manual.

In the sketches of chapter 4.5:

- The positions for the cameras and the lighting are illustrated, running
a) with a horizontal yarn sheet and b) with an inclined yarn sheet
- The path of the inclined yarn sheet is deliberately exaggerated to give a better view.



For the installation of the lights on systems wider than 50 inches the delivery will contain an additional lamp support that can be mounted to the holders. This lamp support allows you to keep the distance between the lamps and the yarn sheet at approximately 700 mm even on these wider systems.

2.6 Exact positioning of the additional reed

For the optimum performance of the CAMSCAN surveillance device it is necessary to mount an additional reed with yarn guide rods in the immediate proximity of the surveillance area. This reed can be mounted to the side frame of the installation. For the installation of this reed, a reed support is supplied.

The following points are important for the exact position of this reed:

- height of the yarn sheet
- position of the cameras
- position of the lighting device
- angle of reflection of the material

For the determination of the exact position of the reed it is necessary to analyse the signals of the cameras, as described in chapter 4.6 of this manual.

Should the device already be assembled, please do not change the position of the reed at this stage.

When installing the device, please fix the reed together with the yarn guide rods only provisionally. However, please take care that the threads are parallel to each other in the surveillance area and that no cross-over threads are present in the yarn sheet. The yarn sheet must fit closely on the yarn guide rods.

Important! The reed with the yarn guide rods should always be mounted on the side of the preferred monitoring area.

2.7 Exact positioning of the cover plate

The position of the cover plate is shown on the drawings in chapter 2.1. The stay-bar of the cover plate should be mounted on the side of the preferred monitoring area.

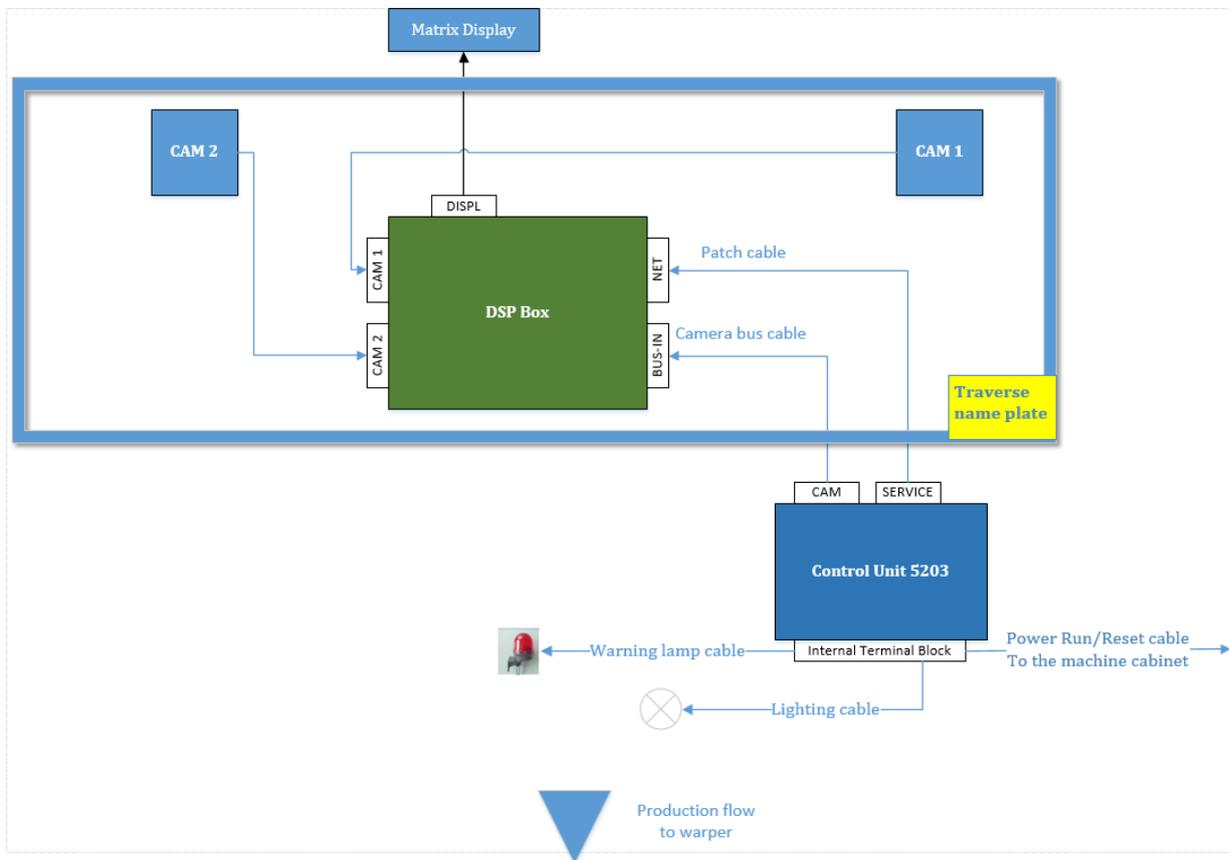
The cover plate should be fastened in an angle of approx. 45°. This angle is predefined at the enclosed cover plate.

Note: If the enclosed cover plate cannot be used due to machine conditional reasons, the substitute cover plate should have approx. the same characteristics as the original plate.

3. Electrical installation

3.1 Electric connection of the components

- The wiring and mounting positions of a 2 Camera standard installation is shown below by way of example.
Facing the production flow from the front, the control unit is mounted on the right side



3.2 Electric connection of the control unit



The electrical connection must only be carried out by suitably qualified technical personnel.



Before electrical connection, you must make absolutely sure that there is no danger to come into contact with any parts that might carry live electricity.

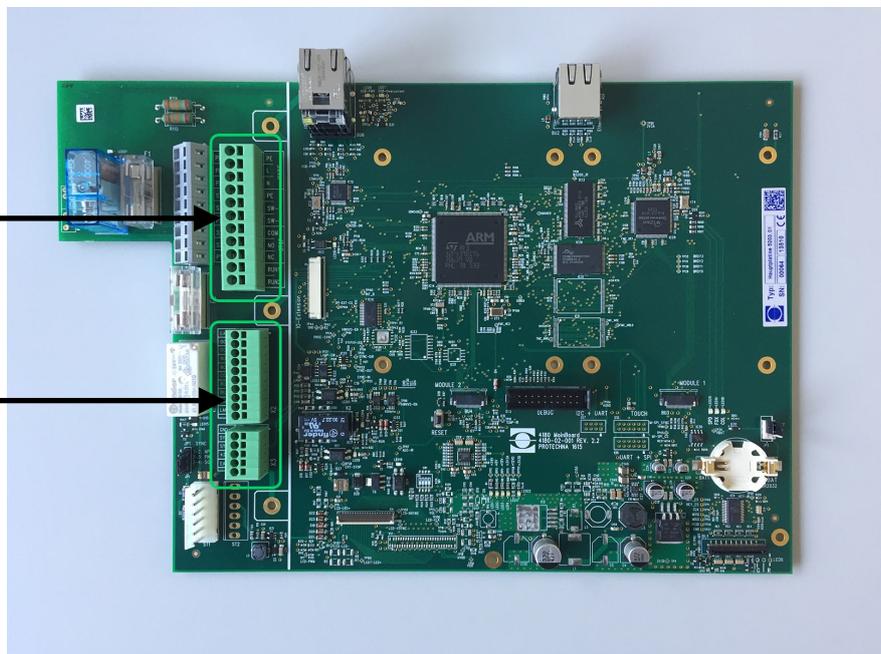


To establish the electrical connection, it is necessary to remove the top cover of the control unit. The cover is fixed with three screws on the right and the left side of the housing.

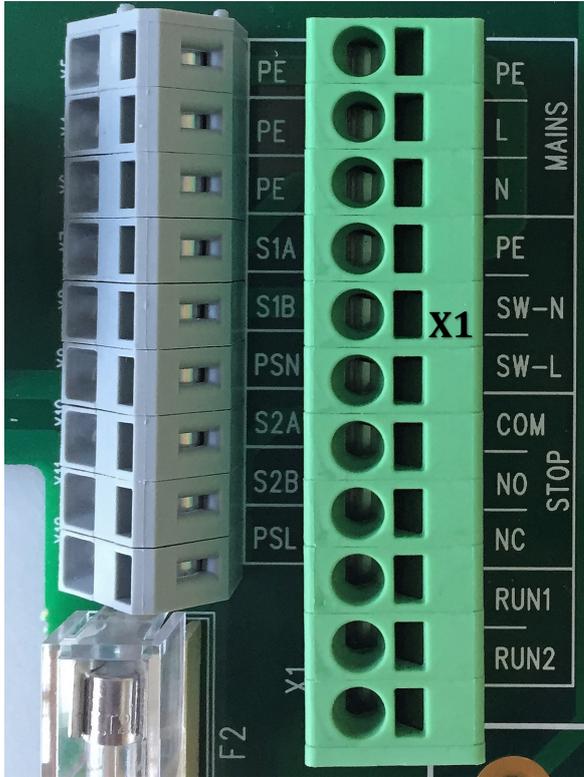
When you have finished the electrical connection, please do not forget to reinstall the top cover and fasten it with the screws.

Mains connection
(standard connection)

Low voltage connection
(additional connection)



3.2.1 Control unit: Mains connection 110-240V (standard connection)



The electrical connection must be carried out by suitable qualified technical personnel only !

PT is the abbreviation for Protechna

X1	Power supply (Mains)	PT- power cable colours 7x0.75 mm²
PE	Protective earth	Yellow/green
L	Power supply (Phase) Mains	Brown
N	Power supply (Neutral)	Blue
X1	Stop contact (Relay / Stop)	PT- power cable colours 7x0.75 mm²
COM	Common	Black
NO	Normally open	Black alternative, if machine needs NO stop contact
NC	Normally closed	Black , if machine needs NC stop contact
X1	Run/Reset input	PT- power cable colours 7x0.75 mm²
RUN1	Switched mains voltage	White
RUN2	Switched mains voltage	White
X1	Switched lighting power supply	PT- lighting power colours
PE	Protective earth	Yellow/green
SW-N	Lamp power supply (Neutral) switched	Blue
SW-L	Lamp power supply (Phase) Mains switched	Brown

Power supply

Please connect the control unit at the terminals **L** (phase) and **N** (neutral) to an alternating power supply between 100 V and 240 V and a frequency of 50 Hz to 60 Hz.

The **PE** terminal must be connected to the ground connection of the machine's switch box.

Lighting power supply

Please connect the lighting device of the CAMSCAN at the terminals **SW-L** (phase) and **SW-N** (neutral). These terminals are providing the switched power supply for the lighting device which is equal to the power supply of the control unit.

The **PE** terminal must be connected to the ground connection of the lighting device.

The lighting device will be switched on / off by the control unit.

Stop contact

Please connect the **COM** and **NC** (break contact) or **COM** and **NO** (make contact) to the stopping device of the machine.

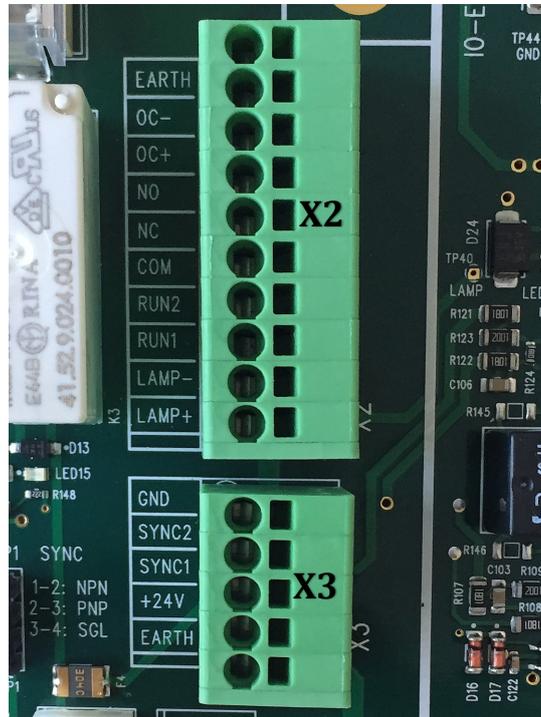
They connect to a potential-free relay contact, which is triggered when a fault occurs.

Run/Reset input

A voltage of 100 V to 240 V AC must be supplied to the terminal **RUN1** and **RUN2** when the machine is in normal operating mode (machine is running)

No voltage must be supplied to these terminals when the machine is in inching mode or at standstill.

3.2.2 Control unit: Low voltage connector X2 (optional connections)

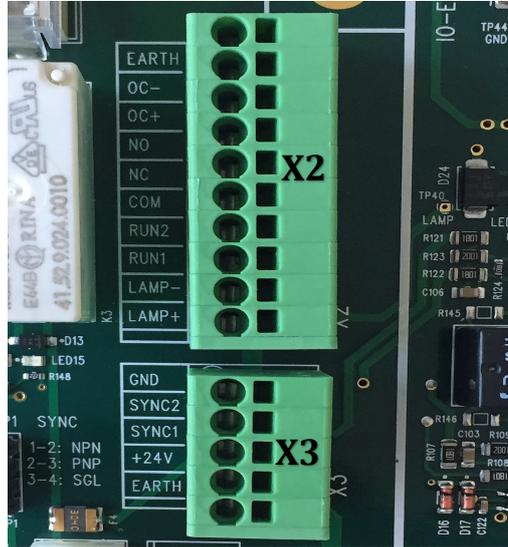


PT is the abbreviation for Protechna

X2	Stop Semiconductor output	PT- Run/Reset cable colours 4x0.34 mm²
EARTH	Earth	Shield
OC-	Semiconductor output (-)	Yellow (if semiconductor output is configured)
OC+	Semiconductor output (+)	Green (if semiconductor output is configured)
X2	Stop contact (Low voltage)	PT- Run/Reset cable colours 4x0.34 mm²
NO	Normally open	Green alternative, if machine needs NO stop contact
NC	Normally closed	Green, if machine needs NC stop contact
COM	Common	Yellow
X2	Run/Reset input (Low voltage)	PT- Run/Reset cable colours 4x0.34 mm²
RUN 2	Low voltage (-)	Brown
RUN 1	Low voltage (+)	White
X2	External warning lamp	PT- warning lamp cable colours 2x0.34 mm²
LAMP -	Power supply 0V	Black
LAMP +	Power supply +24V	Red

3.2.3 Control unit: Low voltage connector X3 (not used)

This connector is not used by the CAMSCAN-Application, no connections are required.



Standard connection : impulse signals from PT sensor

PT is the abbreviation for Protechna

X3	Impulse signal (production cycle) from sensor	PT- Impulse sensor cable colours 4x0.34 mm ²
GND	Low voltage (-)	Blue
SYNC2		Not used for Impulse sensor connection
SYNC1	Impulse signal (PT-standard sensor is PNP)	Black
+24V	Low voltage (+12V- 32V)	Brown
EARTH	Earth	Shield

Alternative connection: impulse signals from machine cabinet

X3	Impulse signal (production cycle) from machine	PT- machine signal cable colours 2x0.34 mm ²
GND	Low voltage (-)	
SYNC2	Impulse signal from machine (low voltage)	Black
SYNC1	Impulse signal from machine (low voltage)	Red
+24V	Low voltage (+12V - 32V)	
EARTH	Earth	Shield



These connections are not required for a standard machine connection.

Stop contact (Semiconductor output)

The terminals **OC+** (plus) and **OC-** (minus) should be connected with the electronic stopping device of the machine.

They serve to provide a potential-free semi conductor output with the following data: $U_{\max} = 30 \text{ V DC}$, $I_{\max} = 0,25 \text{ A}$, NO contact.

Stop contact (Low voltage relay)

Please connect the **COM** and **NC** (break contact) or **COM** and **NO** (make contact) to the stopping device of the machine.

They connect to a potential-free relay contact, which is triggered when a fault occurs. The data of this contact is as follows: $U_{\max} = 30 \text{ V DC}$, $I_{\max} = 1 \text{ A}$.

Reset input (Low voltage reset)

A voltage of $24 \text{ V AC/DC} \pm 20\%$ must be supplied to the terminals **RUN1** and **RUN2** when the machine is in normal operating mode (machine is running). The polarity is of no relevance when direct voltage is supplied.

No voltage must be supplied to these terminals when the machine is in inching mode or at standstill.



The mains voltage reset input must not be connected when a low voltage reset is made.

External warning lamp

Please connect the cable for the external indicator lamp to the terminals **LAMP+** (+24 V DC) and **LAMP-** (0 V).

The maximum load of this lamp output is 5 Watt.

4. Initial operation

4.1 Prerequisites

Before starting with the adjustment of the cameras, please check again the following points:

- 1) The device must be assembled completely
- 2) The device must be connected electrically
- 3) The cameras have to be in the middle of the zone to be controlled
- 4) The reed with the yarn guide rods must be assembled
- 5) The yarn sheet must be inserted completely
- 6) No cross-over threads or doubles may be present in the yarn sheet
- 7) The yarn sheet must be stretched (by using the creep speed of the machine)

4.2 Preadjustment of the camera hardware



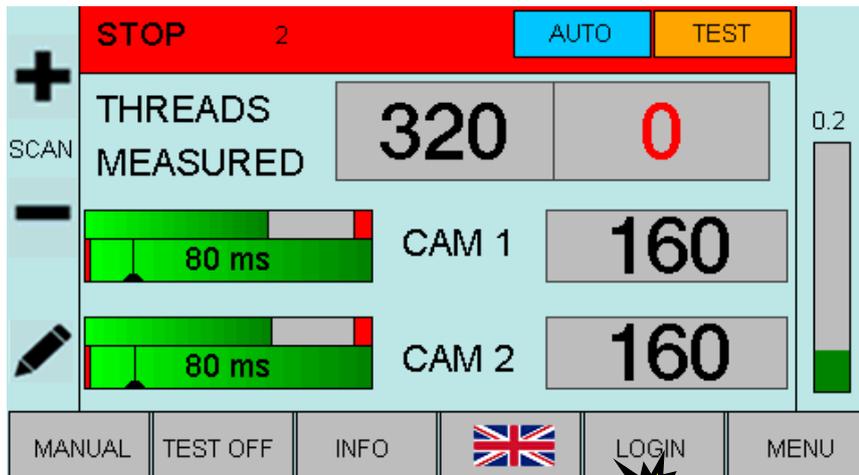
The camera has two adjustment rings and two belonging scales:

- a) The focus ring is used to alter the focus distance of the camera. The belonging focus scale indicates the focus distance currently used by the camera (yellow scale in inch / white scale in meters).
- b) The aperture ring is used to set up the aperture of the camera. By default the aperture is set to four and should not be changed. The belonging scale displays the current aperture setting.

4.3 Preadjustment of the camera focus using the control unit

To adjust the camera, for example to zone 1, please proceed as follows:

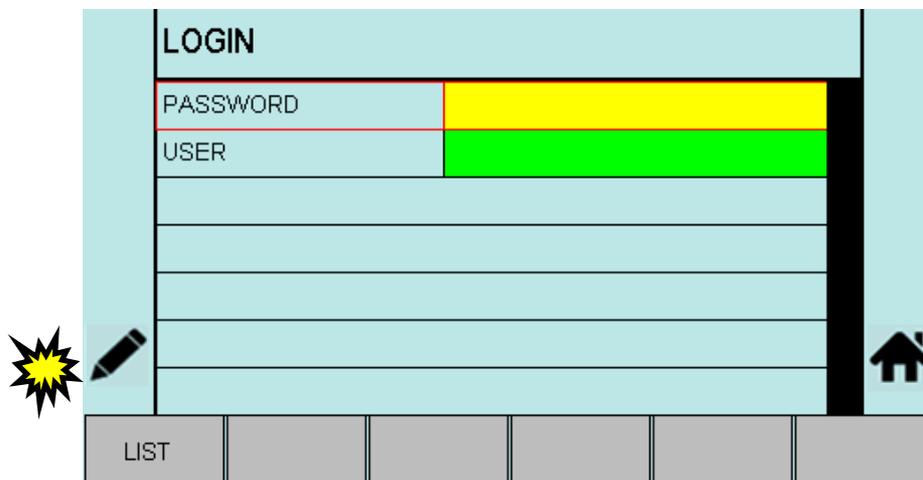
- Remove the optics cover from the camera. Please remove only the optics cover and do not remove in any case any optical filter that may be attached to the camera.
- Switch on the control unit.
- Open the camera service screen as follows:
 - The main screen will be visible after the power on. Press the *Login* key to log on.



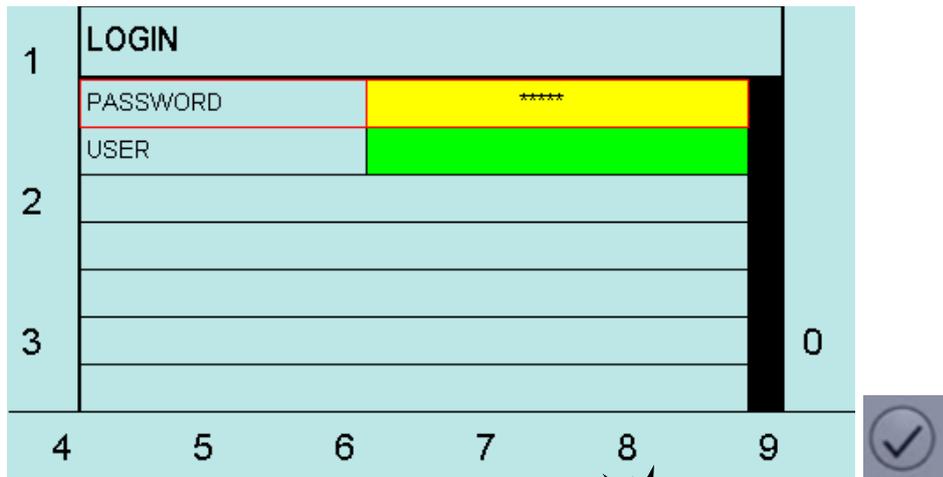
Hint: The key always refers to the screen symbol and meaning next to the key.
See description in chapter 6.3



- Press the *Pencil* key to open the input screen for the password.



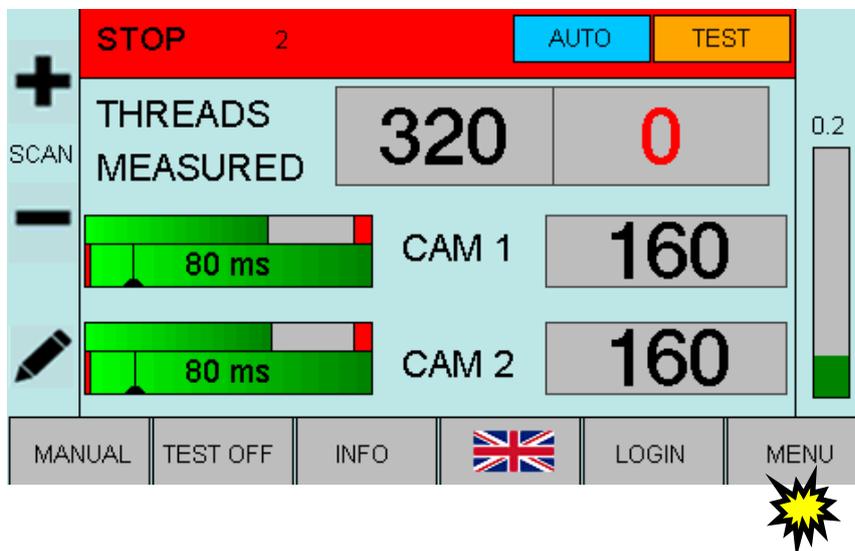
- Enter the password “85521” using the *Number* keys.



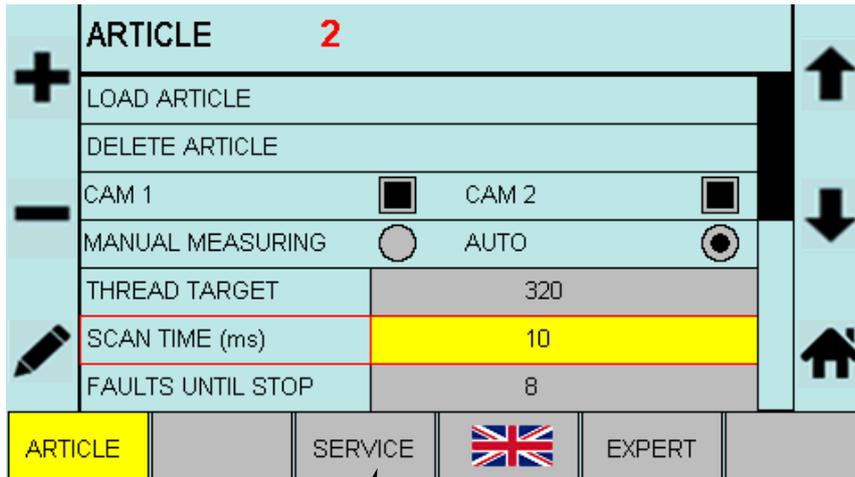
- Confirm the password with the *Enter* key, then- press *Home* to return to the main screen.



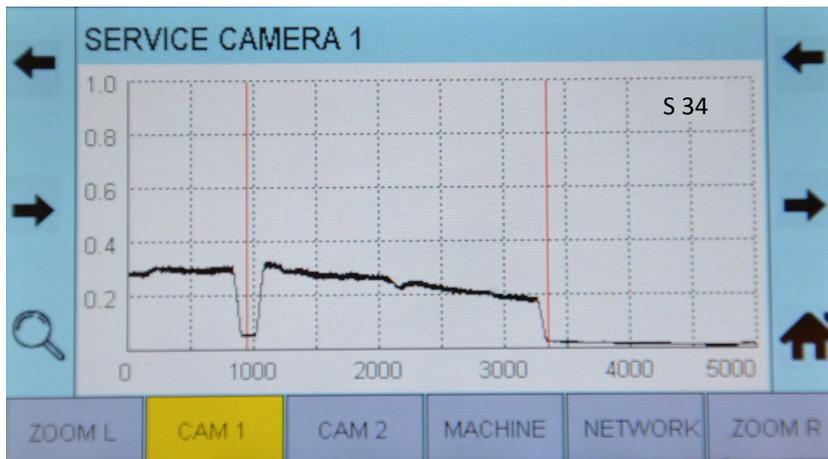
- Press the *Menu* key to proceed to the article set up menu.



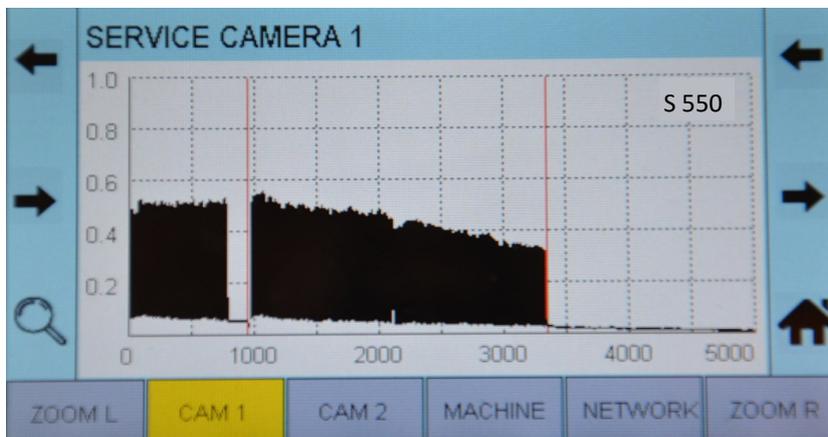
- Press the *Service* key to enter the service screen.



- Depending on the focus setting of the camera your signal may look similar to the following picture.

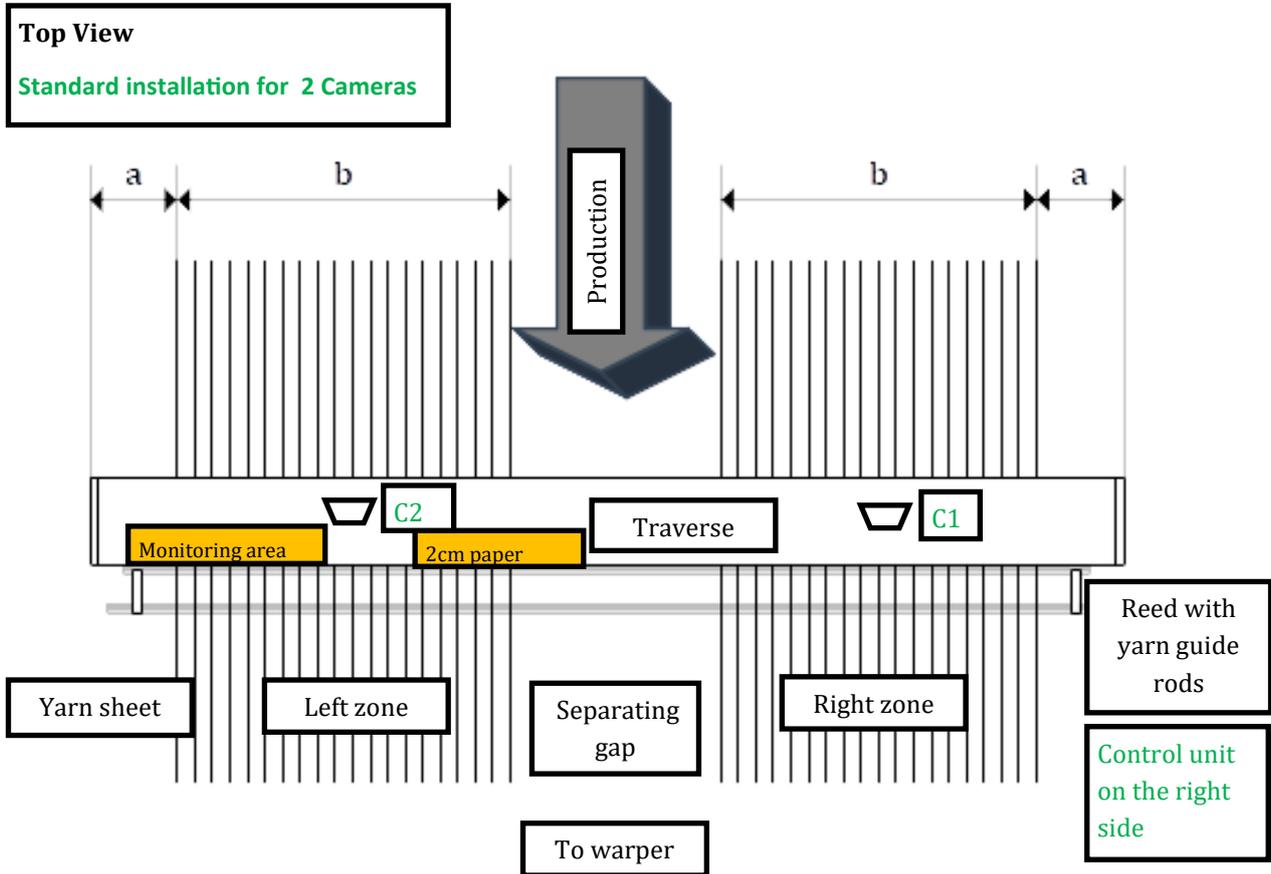


- Focus the camera by moving the focus ring until the thread signal is at the optimum. This is usually the case when the sharpness value (in the top right corner of the display, here "S 550") is at its maximum.



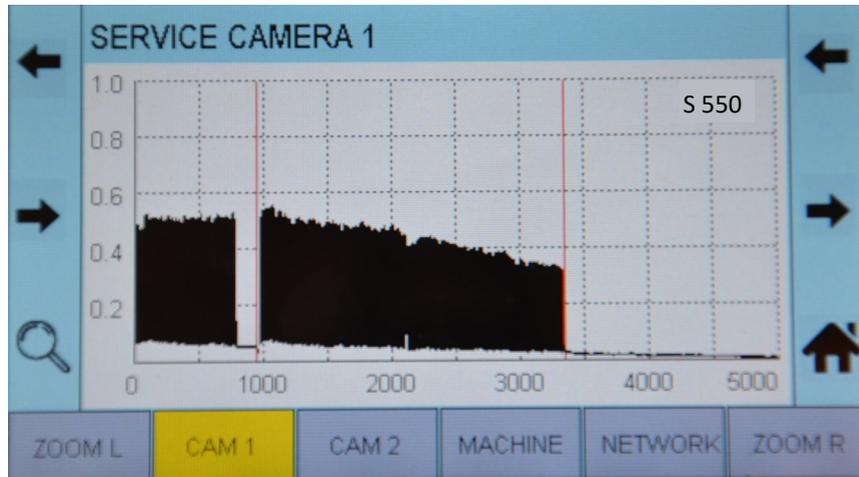
4.4 Exact adjustment of the camera monitoring area (standard mounting)

- Place an approximate 2 cm wide piece of white paper after the reed onto the yarn sheet below the camera traverse.

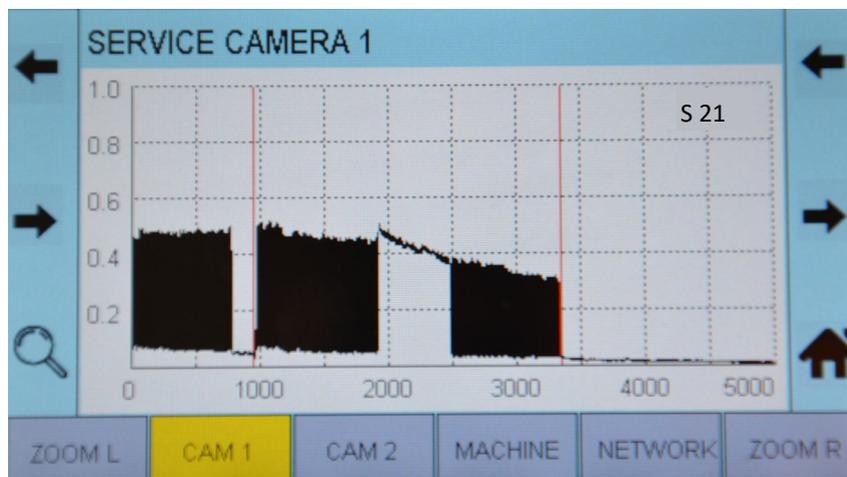


- Adjust camera 1 (C1) with the help of the camera tilt screw, so that the inside edge of the white marking paper is just recognized. The camera signal should look like the following pictures:

Camera monitoring area without marking paper before adjustment.



Adjustment of the camera monitoring area reaching the edge of the 2cm wide marking paper .



- Adjust camera 2 (C2) with the help of the camera tilt screw, so that the inside edge of the white marking paper is just recognized., accordingly.
- **The standard monitoring area of the traverse is adjusted now (2cm distance from the reed)**

4.5 Exact adjustment of the lighting

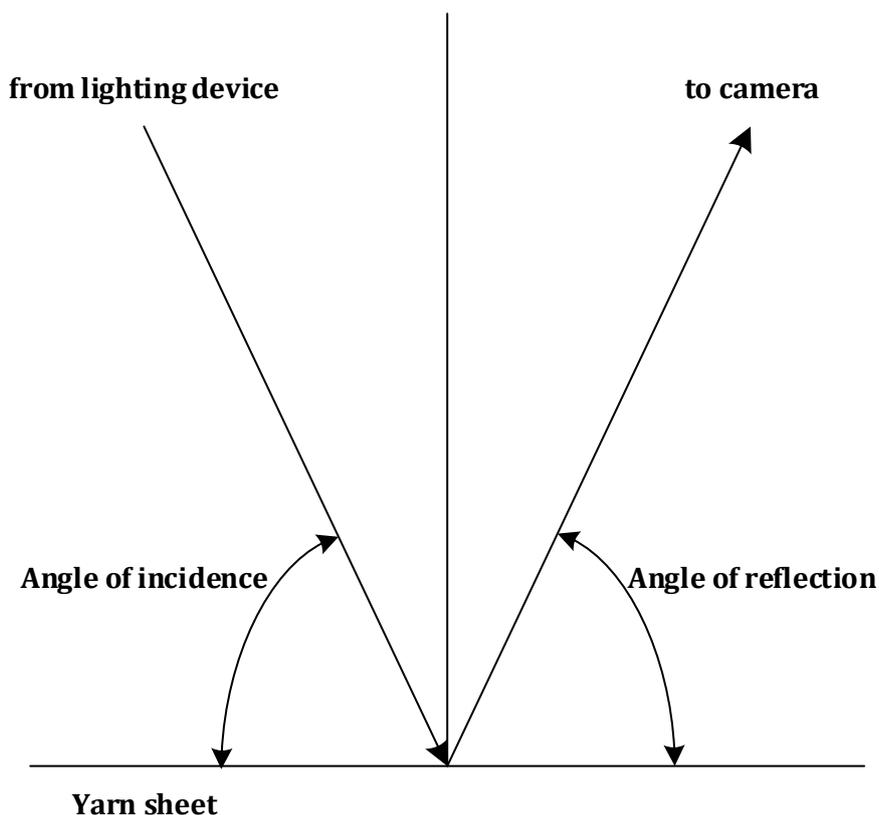
4.5.1 For direct and fluorescent lighting --> adjust the angle of reflection

- Remove the white marking paper.
- Optimize the angle of reflection by altering the lighting device horizontally (see the following explanation) until you achieve the maximum possible thread signal.

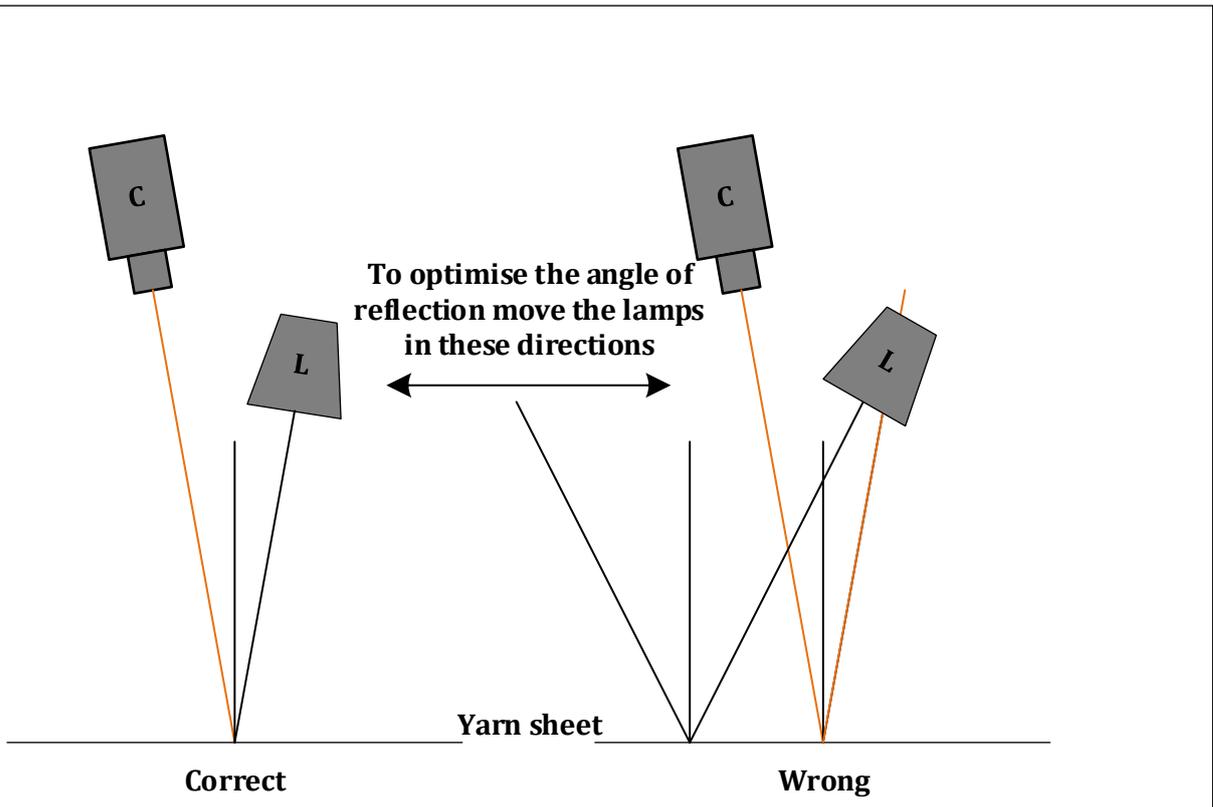
Angle of reflection

The angle of reflection (of the material) is essentially for the trouble-free function of the surveillance device. The angle of reflection must be set exactly when the camera is adjusted. Shiny additional threads should be used during the adjustment of the camera when materials with a dull surface are momentarily on the machine. Otherwise a faultless function will not be achieved following a change in material.

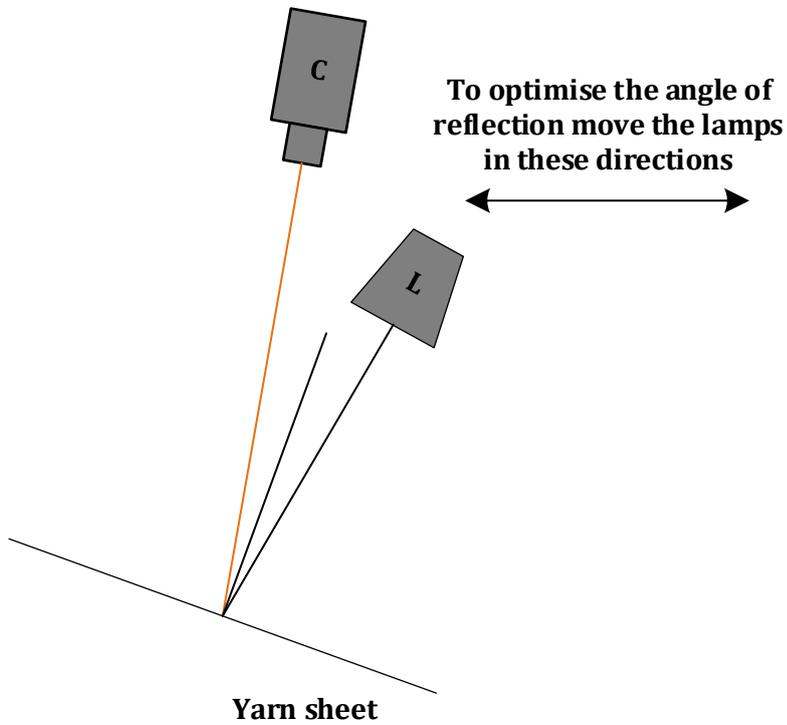
Shiny material works like a mirror. Therefore the following rule applies: The angle of incidence equals the angle of reflection.



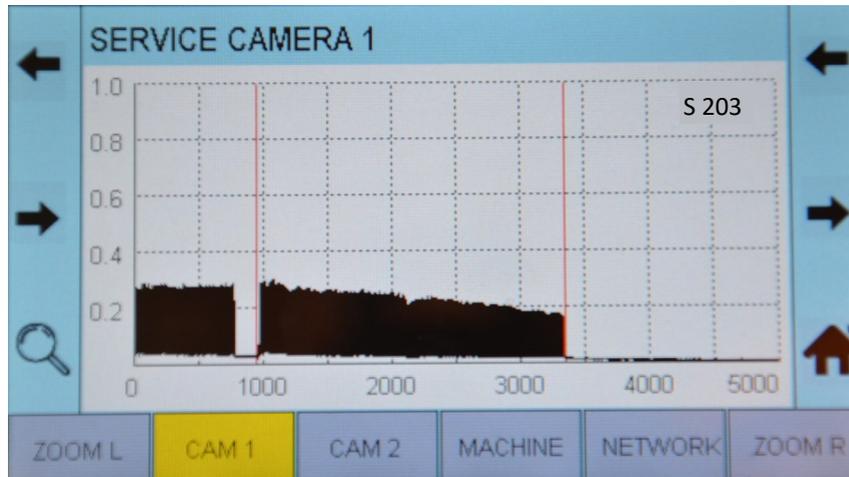
Since the position of the surveillance area (in the proximity of the reed) and therefore the angle of the camera to the yarn sheet should not be altered any more, the optimisation of the angle of reflection has to be made by moving the lighting device only. This is done by using „Grabmeier“-plates which are mounted between the lighting devices and the mounting profile (see drawing „Montagevarianten“ in chapter 2.2).



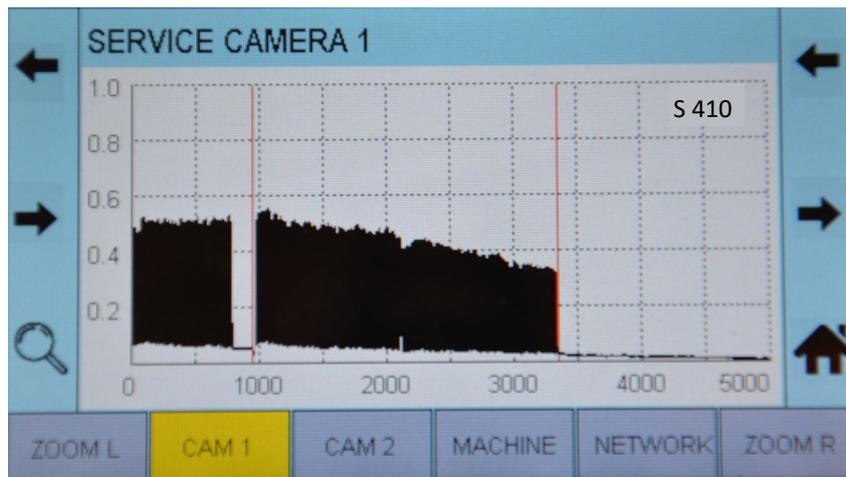
- With an inclined yarn sheet the angle of reflection must be set accordingly:



Before the adjustment of the lighting

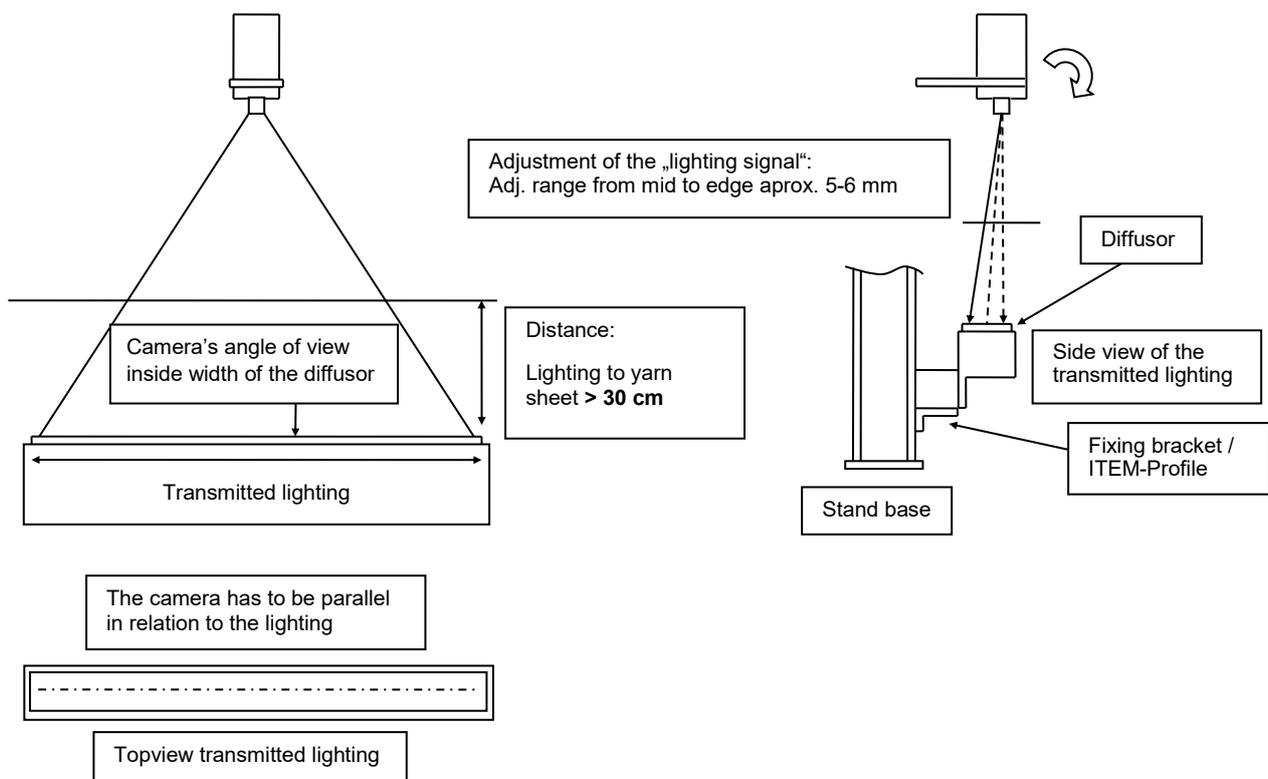


After the adjustment of the lighting

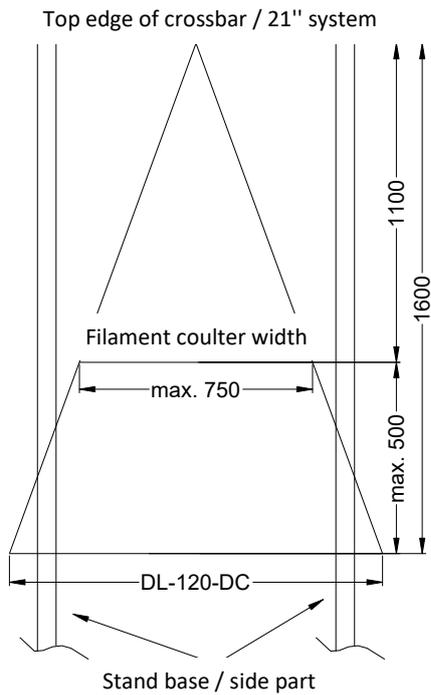


4.5.2 Adjustment of the transmitted lighting

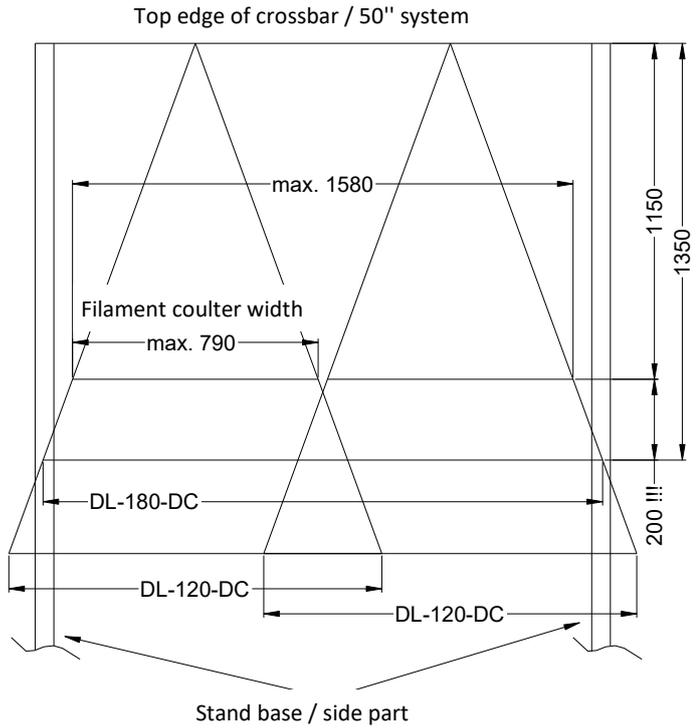
- Remove the white marking paper.
- The distance between the top edge of the transmitted lighting and the yarn sheet has to be greater than 30 cm. This makes sure that the lighting is outside the focus of the camera. The greater the distance, the less likely it is that interference due to dust etc. occurs.
- **Caution:** Camera's angle of view has to be inside the width of the diffusor of the transmitted lighting.
- The adjustment of the "lighting signal" is done by tilting the camera.



Distances of transmitted light illuminator(s) to filament couler for 21"-84" systems:



-Protrusion of the lighting from the stand base on each side approx. 60mm !

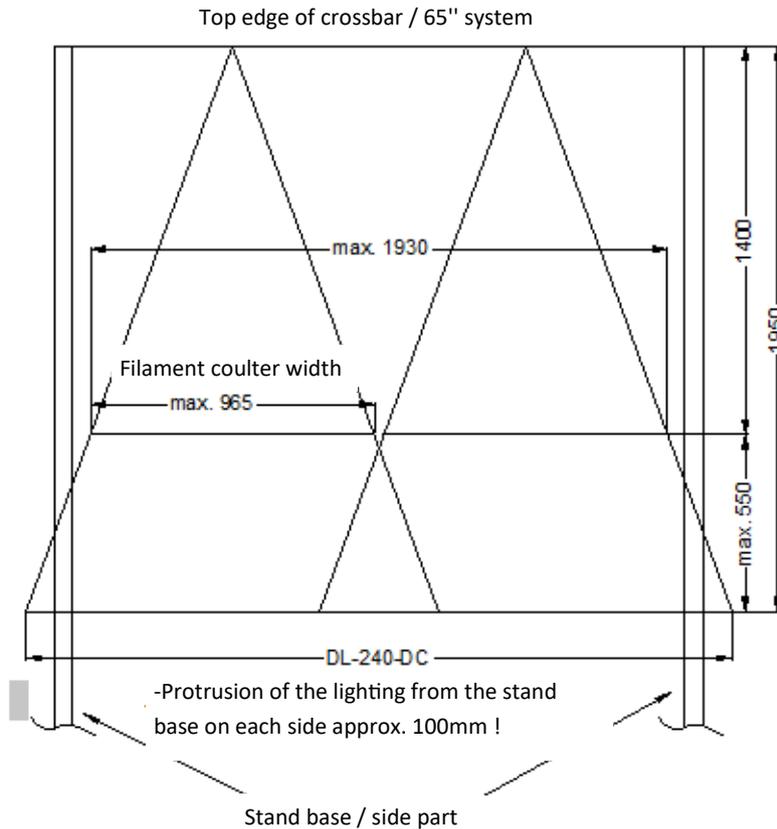


2x DL-120-DC mounted offset

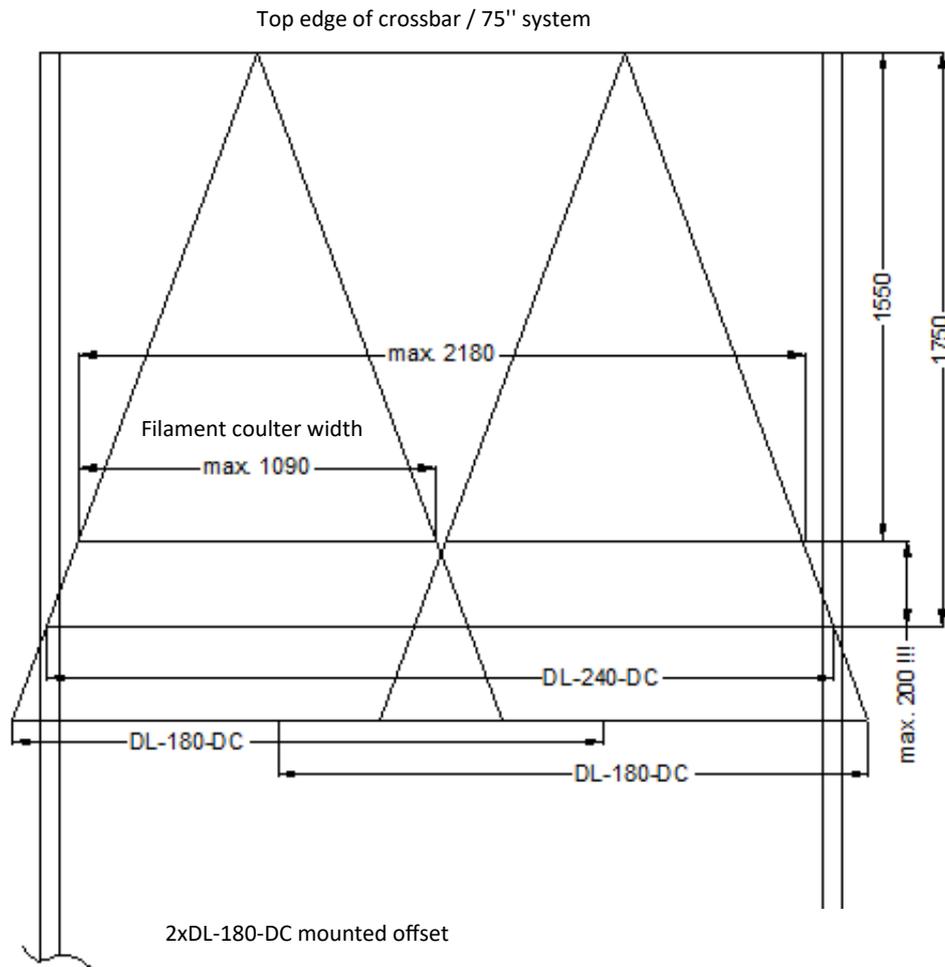
-distance from filament couler to diffuser approx. 500mm

-protrusion of the lighting from the stand base on each side max. approx. 90 mm !

1x DL-180-DC not possible, because the distance of thread couler to diffuser is too small !!!



-Protrusion of the lighting from the stand base on each side approx. 100mm !



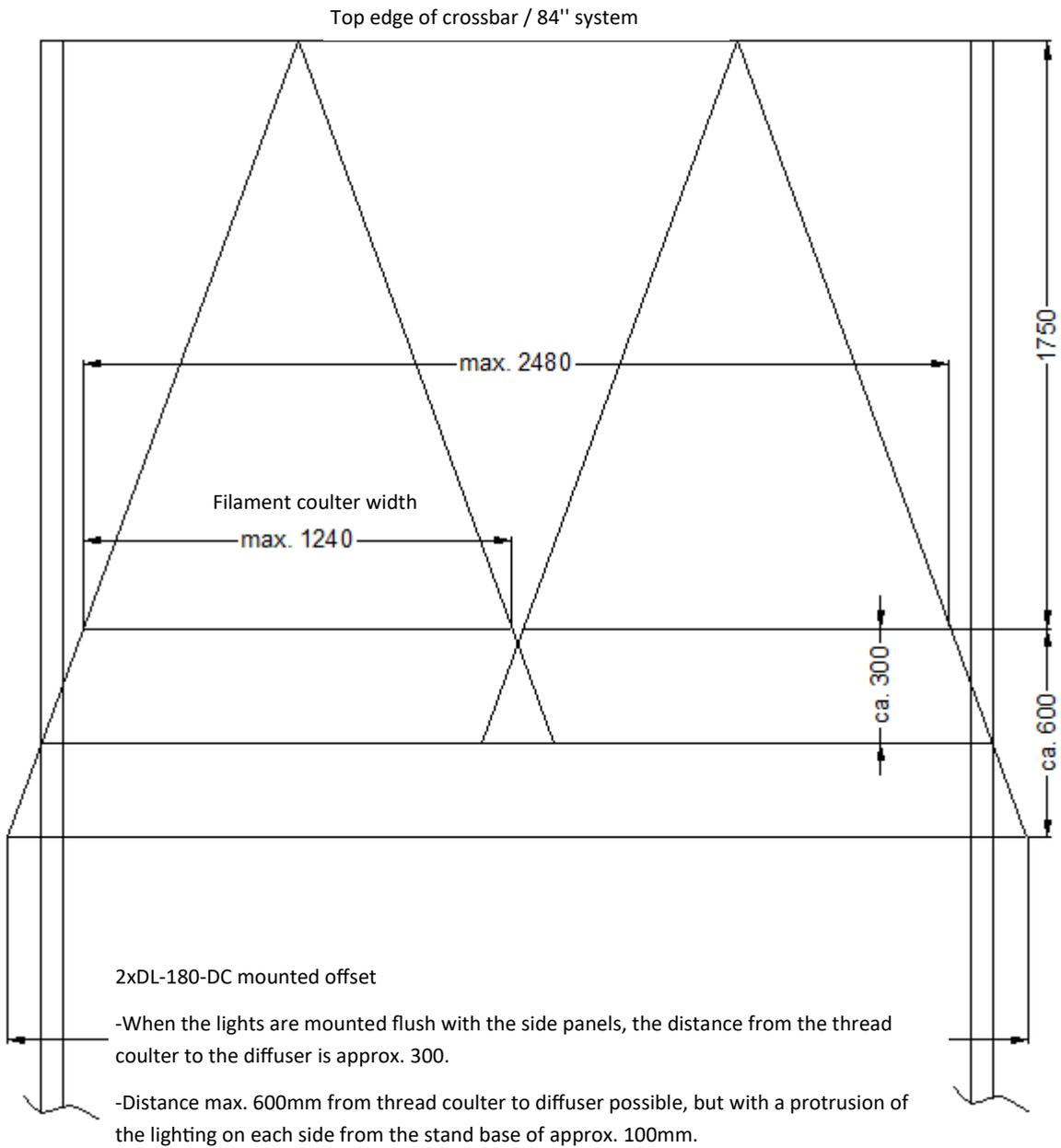
2xDL-180-DC mounted offset

-distance from filament couler to diffuser approx. 550mm

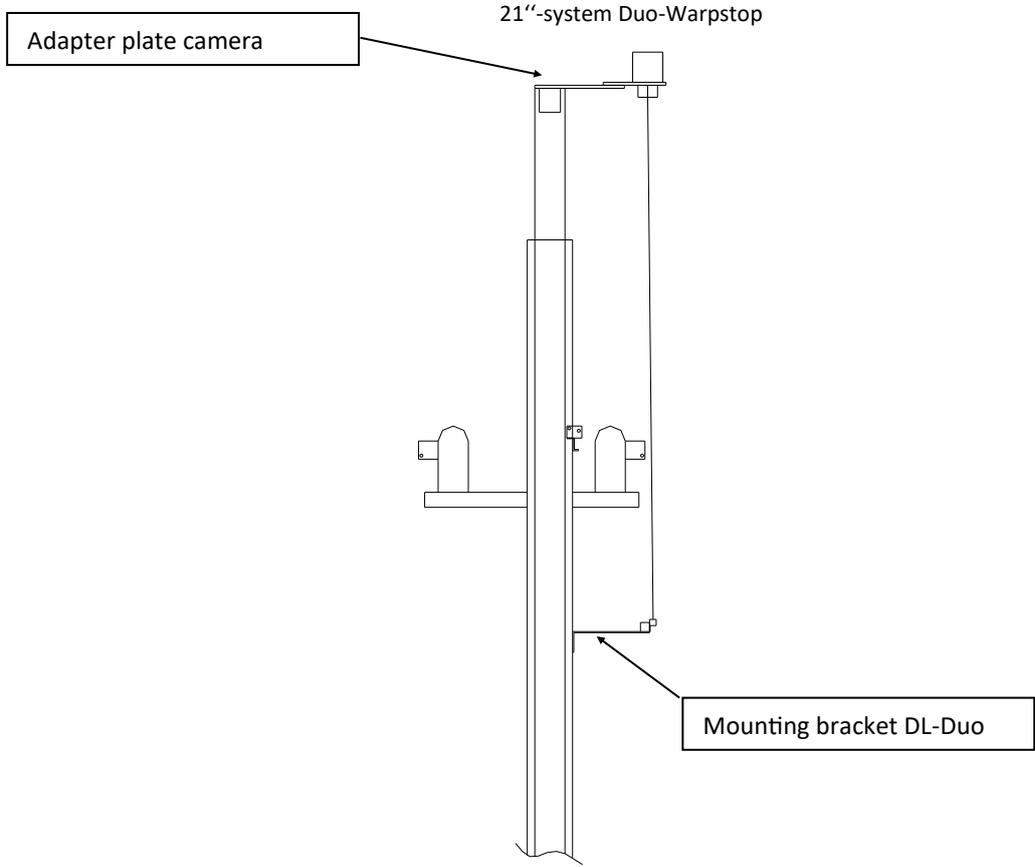
-projection of the illumination from the stand base on each side max. approx. 100 mm !

-distance of filament couler to diffuser could also be set >55cm, then the lightings protrudes on each side max. 280mm outside of the stand base.

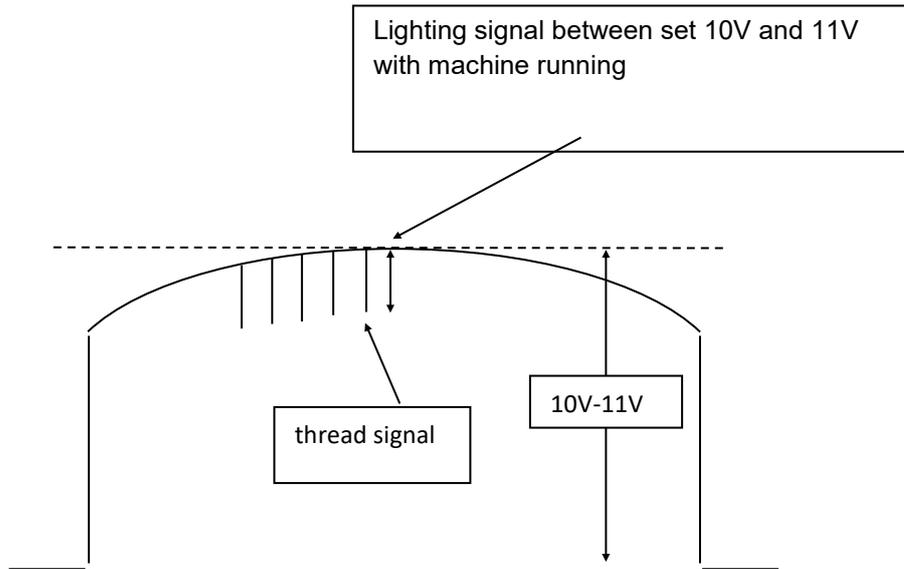
1xDL-240-DC not possible, because the distance of thread couler to diffuser is too small !!!



Mounting in combination with Duo-Warpstop:



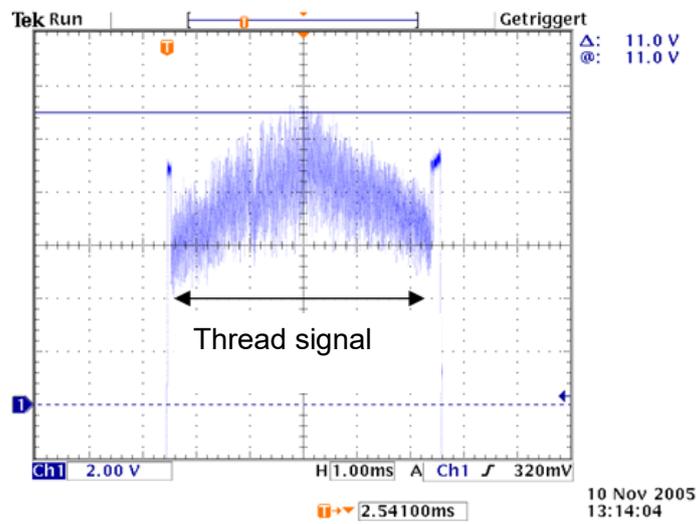
Set scan time and threshold:



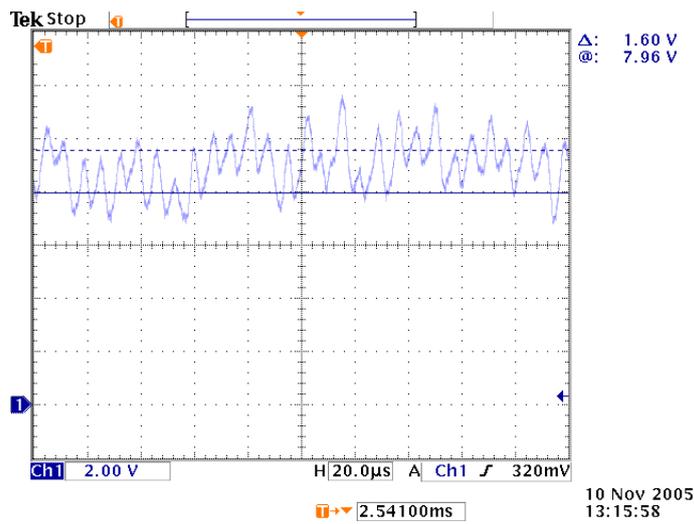
- Set the scan time to >5ms (typ. 9ms can be set if the illumination distributor BV-537ACDC-3 has been modified to "reduced light output", recognizable by the type plate BV-537ACDC-3-C), the camera should then be centered on the diffuser width.
- Focus the camera on the filament couler and determine the threshold value range (select the Activate numerical input setting via Terminal-8024 under F2 Installation). Take over the average value from the determined threshold value range. Observe the deviation of the counters.

Example: Trial line at BST-Safty Textiles

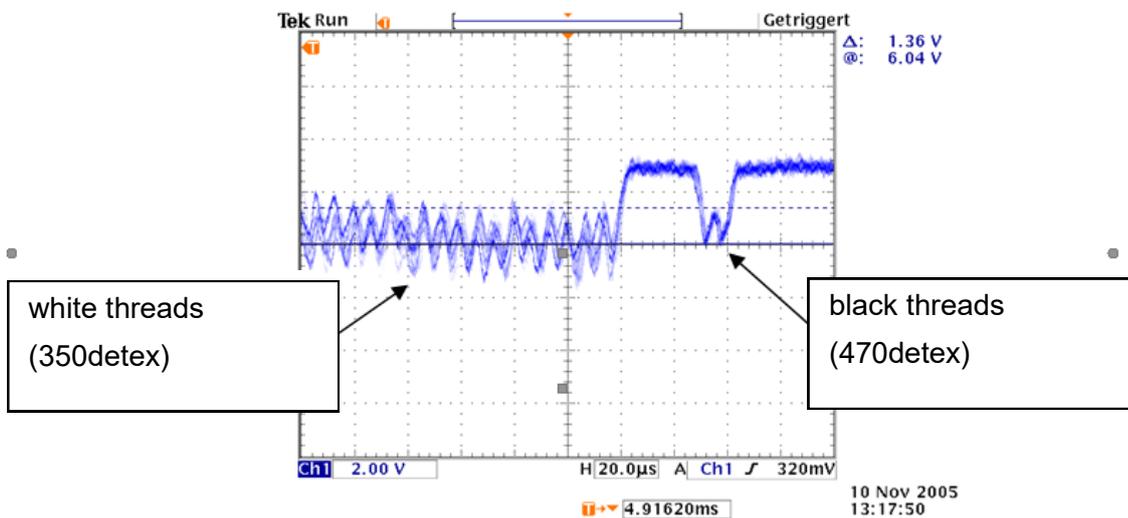
„Illumination signal“ max. 11 V



Thread signal in the middle of the filament coultter (white threads 350detex)



Thread signal at the edge of the filament coultter



4.6 Exact adjustment of the camera

4.6.1 Exact adjustment of camera focus and scan time

- Readjust the focus of the camera to achieve an optimal image of the thread signals. To do this, set the sharpness value in the camera service display (see figure below, here “S 550”) to the maximum. The sharpness value reflects the sharpness in the center of the camera area. Please secure the focus ring carefully with an adhesive tape.
- The height of the thread signals depends on the set scan time and on the kind of the material being controlled. The **working range** of the cameras lies approximately between **0** and **1**.

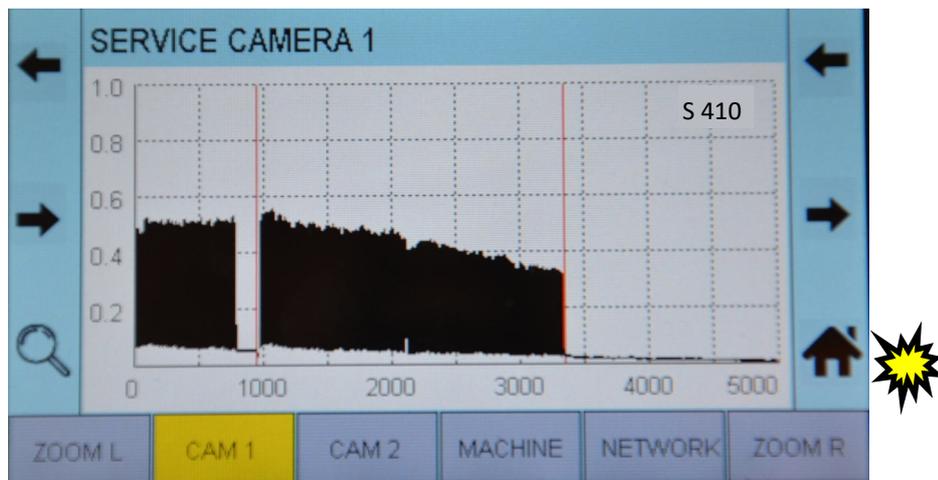
Adjust the scan time after the optimisation of the angle of reflection and the focus setting, so that the thread signals are approximately in the middle of the working range of the cameras:

Thread signals too low: prolong the scan time.

Thread signals too high: shorten the scan time.

If necessary alter the scan time as follows:

- Return to the article set up menu by pressing the *Home* key.



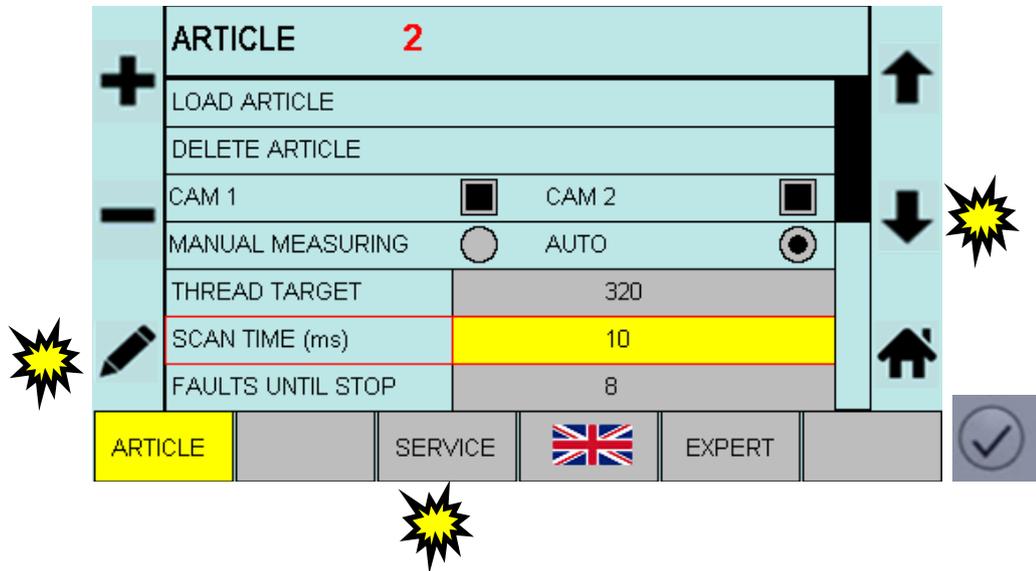
- Navigate the active input field (marked yellow) to the scan time by using the *Up / Down* keys.

ARTICLE 2	
LOAD ARTICLE	↑
DELETE ARTICLE	
CAM 1 <input type="checkbox"/> CAM 2 <input type="checkbox"/>	↓
MANUAL MEASURING <input type="radio"/> AUTO <input checked="" type="radio"/>	
THREAD TARGET 320	
SCAN TIME (ms) 10	
FAULTS UNTIL STOP 8	↓
	↑

ARTICLE SERVICE EXPERT

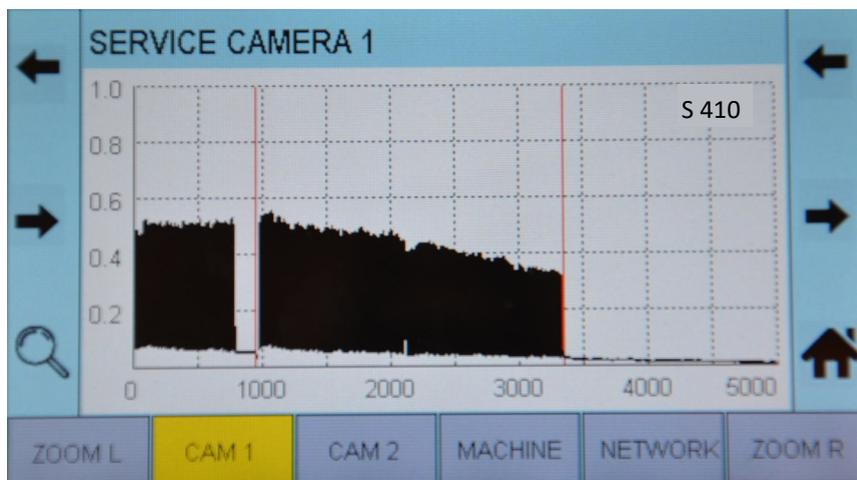
Yellow starburst icons are located to the right of the up and down arrow keys.

- Change the scan time by pressing the + / - keys or by pressing the *Pencil* key. Confirm the input by using the *Enter* key. To check the thread signal, return to the service screen using the *Service* key.

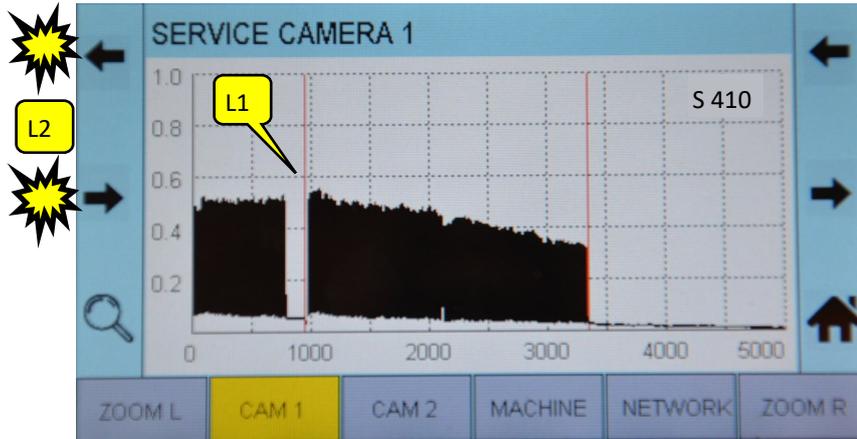


4.6.2 Exact adjustment of the camera monitoring zone limits

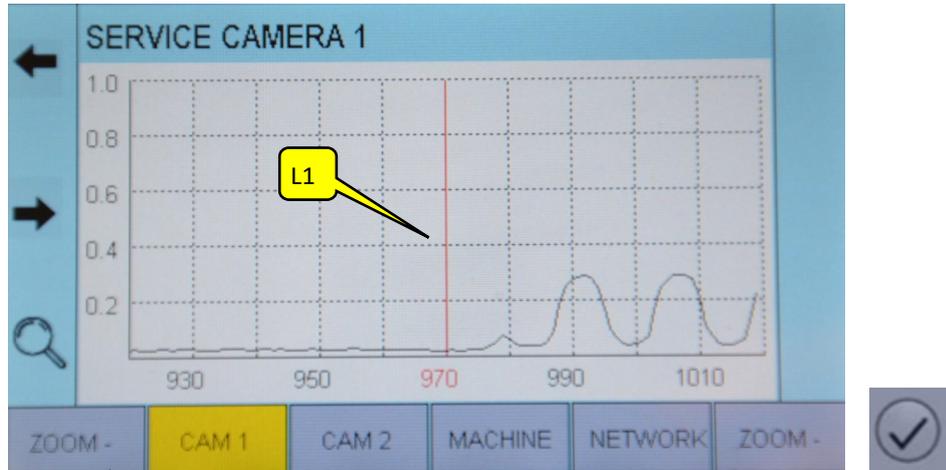
- In case the cameras are overlapping (a camera is looking on parts of the thread zone of the other camera) or in case the viewing range of the camera is bigger than the thread zone, it is necessary to limit the viewing range of the camera. In the example below camera 1 is on one side looking on parts of the yarn sheet from zone 2 and on the other side the viewing range is larger than the thread zone. The viewing range of the camera must be limited on both sides.



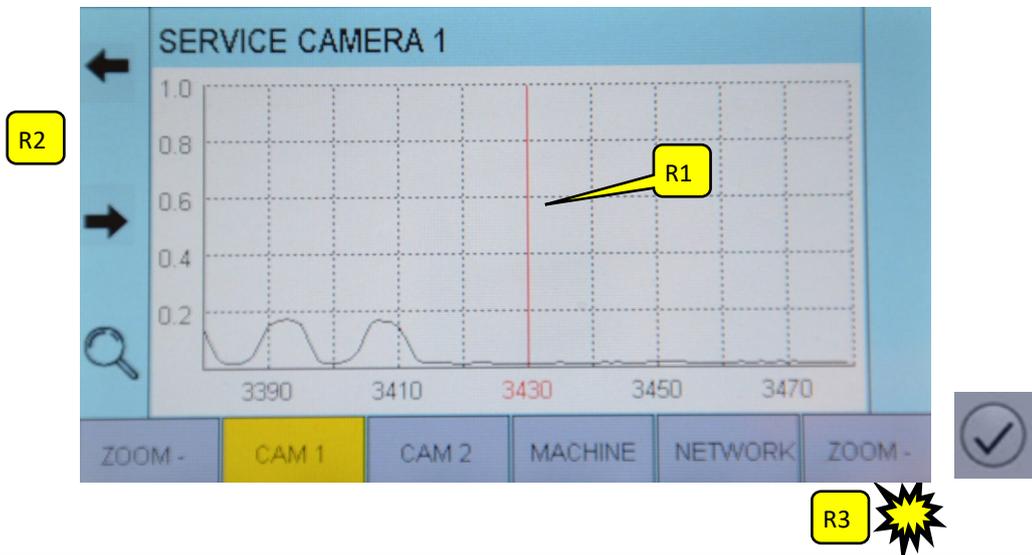
- Open the service screen for camera 1 and move the left camera limit (L1) with the two *Cursor* (L2) keys.



- To fine-tune the limit press the *Zoom* key for the left limit (L3) and move the limit to the right position. Enter the changes with the *Enter* key. Press the *Zoom* key again to leave the zoom mode.



- Adjust the limit of the right side (R1,R2,R3) in the same way.

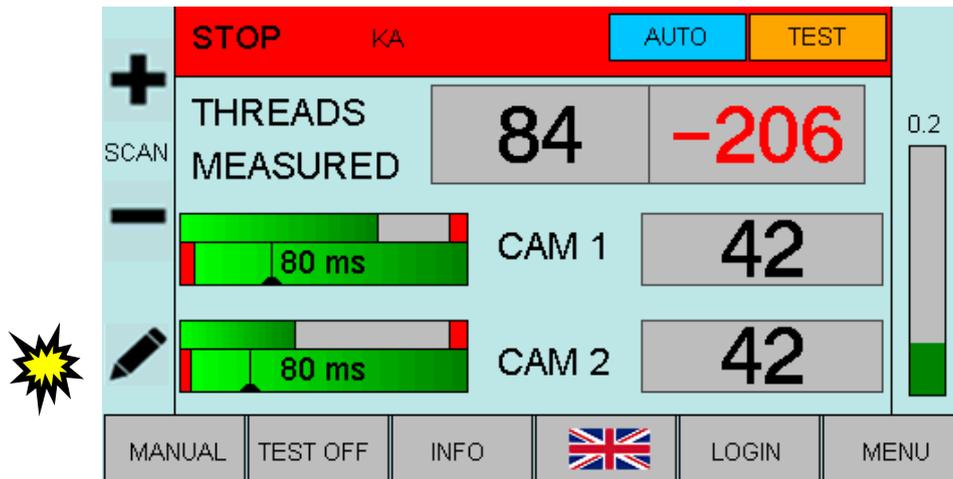


5. Initial setup of an article

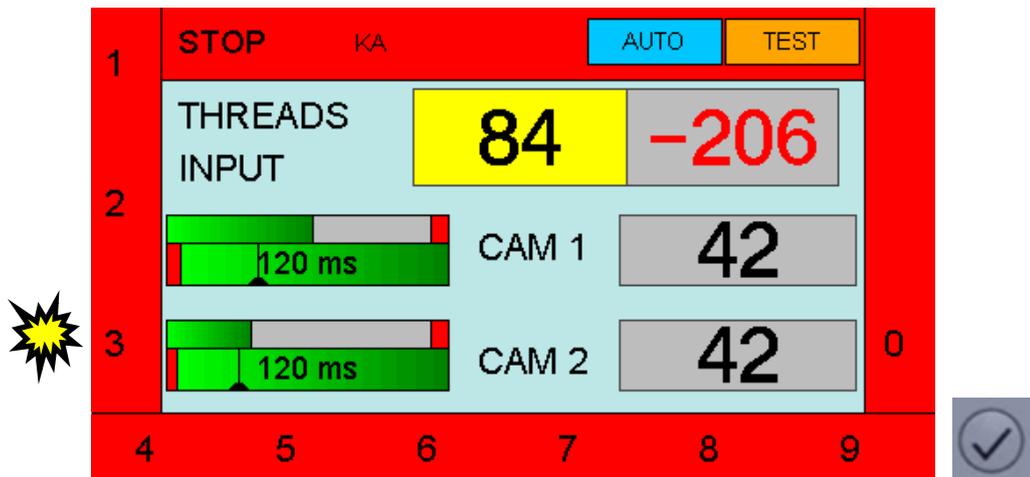
5.1 Setup the thread count

To start the system it is finally necessary to input the target thread count of the complete system (in case of two zones the sum of both zones).

- Enter the main screen and press the *Pencil* key to input the target thread count.



- Input the target thread count with the *Number* keys and confirm with the *Enter* key. Return to the main screen.



The initial installation is finished and should be saved now.

5.2 Complete setup for a specific article

To complete the setup for a specific article please follow the instructions as described in the CAM-SCAN 5203 User-manual, chapter 9.

For your notes

6. Additional information

6.1 Further possibilities to optimize the thread signals

FOR SPECIALLY TRAINED STAFF ONLY !

a) Altering the aperture of the camera

You have the possibility to alter the setting of the aperture (normal setting 4). Please open the aperture when the thread signals are too low (maximum 2,6) or close the aperture when the thread signals are too high (minimal 5,8).

b) Altering the height of the lamps to the yarn sheet

The distance between the lamps of the lighting device and the yarn sheet usually should be about 700 mm. This distance is however also dependent on the kind of the used lamps as well as on the material to be controlled. The distance between the lamps should be chosen in such a way, that an even illumination of the yarn sheet is ensured.

Note: With installations up to and including 50" no separate lamp support for the lighting device is supplied. In these cases the lamps of the lighting device are fitted directly to the traverse. For this reason a change of the height is not possible.

Attention! If you change the position of the lighting device, the adjustment (and therefore the angle of reflection) is not correct any more. In this case it is necessary to carry out the adjustment of the device again.

6.2 Software update

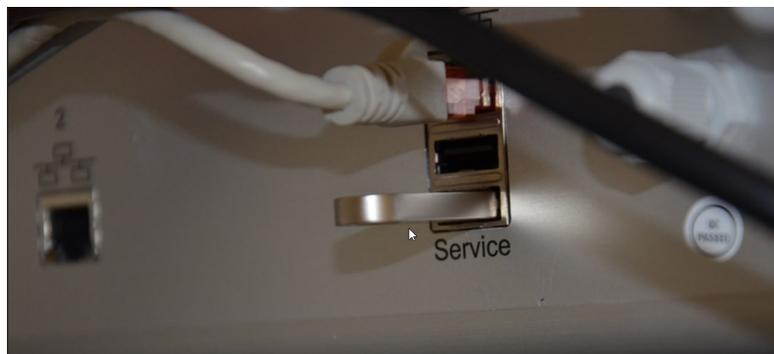
- The software update is made via a prepared USB-stick which includes the following files. The control unit has to be updated first followed by the update of the DSP-Box.

Essential files on the USB stick:

FlashWriter.hex	Basic Loading file
E.g.: Camscan3.hex	Update file for control unit (actual revision may vary)
E.g: 5203_V010f.bin	Update file for DSP-Box (actual revision may vary)

6.2.1 Software update of the control unit

- Turn off the control unit and connect the USB-stick to the Service port on the rear side



- Switch on the control unit. You will get status messages like this:

<pre>STM32 Bootloader Rev. 2 Apr 16 2014 11:47:01 Scanning USB</pre>	<pre>Firmware: Rev. 675319809 is NOT an update! Press Key to flash</pre>
--	--

- Push any key to start the update. After proceeding, you will get a final status success message like this:

```
File:
CamScan3.hex
Write Flash
*** Succeeded! ***
Verify Flash
*** Succeeded! ***

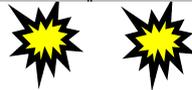
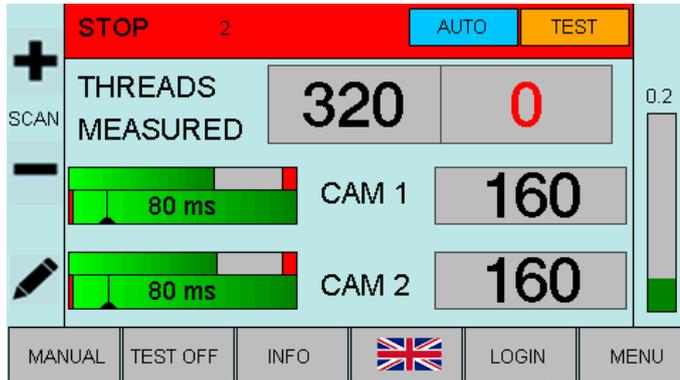
Reset to continue.
```

- The control unit is updated now. Switch off the control unit and remove the USB-stick.

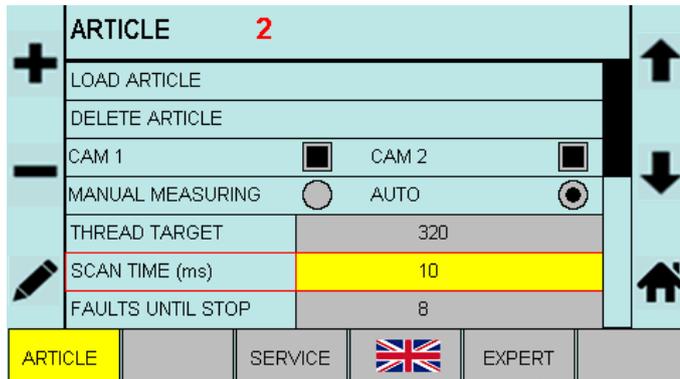
6.2.2 Software update of the DSP-Box

You need to update the DSP-Box with the corresponding software version, too.

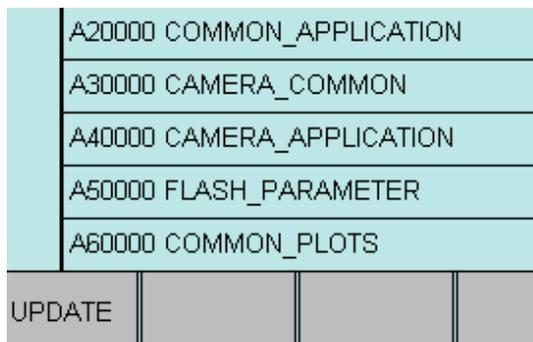
- Connect the USB-stick to the Service port on the rear side of the device and turn on the control unit. The home-screen will be displayed.
- Login with password: 85521



- Press the *Menu* key to proceed to the article set up menu.

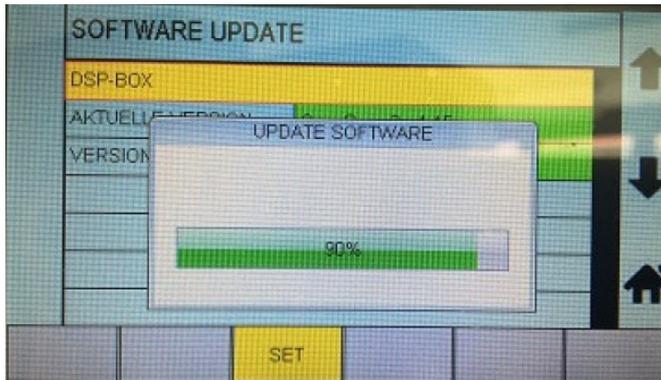


- Press the *EXPERT* key to proceed to expert menu.



- press the *UPDATE* key

- Press the *SET* key to start the software update process for the DSP-Box.

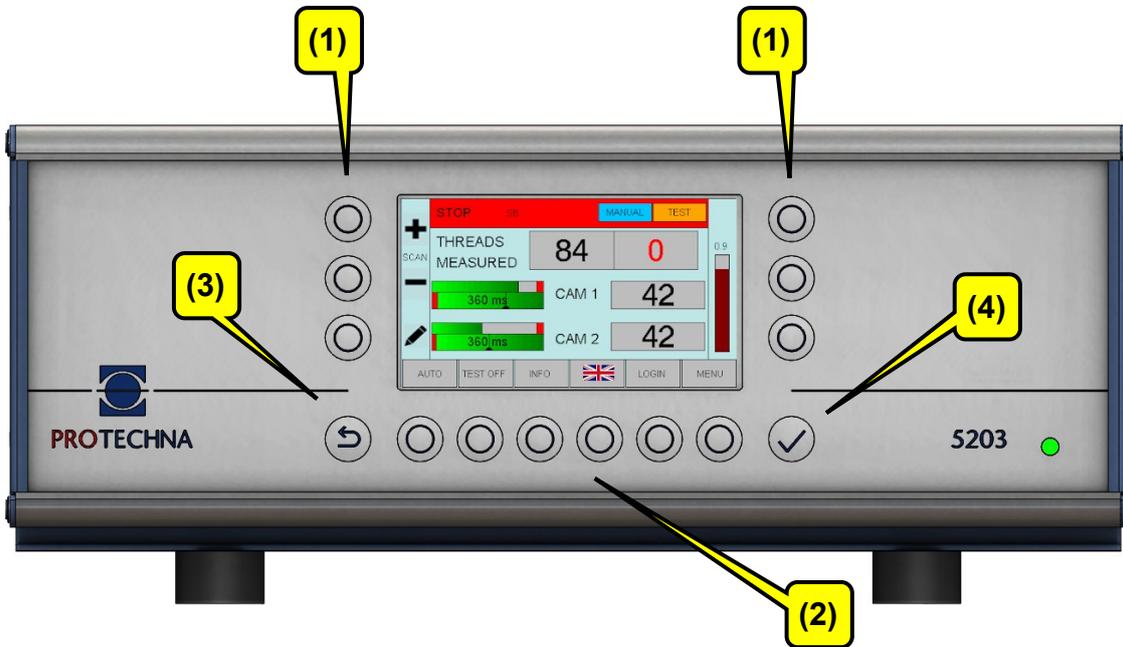


After reaching 100%, the update-file was loaded on the DSP-Box successfully.

- Switch off the control unit and remove the USB-stick.
- Switch on the control unit again. Control unit and DSP-Box are updated now.

6.3 User interface basics

The control unit 5203 allows the complete control and parameterisation of the camera system. The relevant input pages are illustrated and described below.

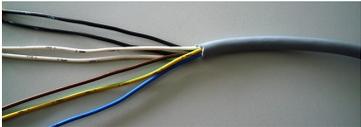


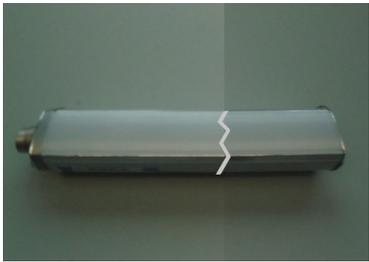
Meaning of the keys

- | | |
|------------------------------|---|
| Softkeys (1): | The meaning of the keys is described on the screen. |
| Menu keys (2): | The meaning of the keys is described on the screen. |
| Keys with a fixed assignment | ESCAPE (3) and ENTER (4) |

The keys (1) and (2) refer to the screen symbol next to the key.

7. Technical Data of Main Components

	Article Number	Description	Technical Data	Weight [kg]
	10989	Ground connection band	Length 40cm, for M6/M6 screws	0.032
	10802	Machine connection cable	7 x 0.75mm ² , outer diameter 8.3mm, length 20m,	0.1 / m
	13610	Warning lamp 4180	Cable length 10m	0.48
	13578	Camera 5203	Focal length 50mm	1.38
	13577	DSP-box 5203	For connection of up to two cameras.	1
	13885	Mounting set camera / DSP-box 5203		0.1

	Article Number	Description	Technical Data	Weight [kg]
	14811	Direct lighting 5480 Length 558 mm	24 V DC 15.5 W, 1674 lm	0.34
	14812	Length 1158 mm	32.0 W, 3474 lm	0.68
	14813	Length 1758 mm	48.5 W, 5274 lm	1.10
	14814	Power supply for direct lighting	Input: 100 - 305 V AC Output: 24 V DC, 96 W	0.58
	14679	Mounting set direct lighting 5203 / 5311		0.06
	13025	Display 8027	LED Matrix Display, cable length 6m	1.42
	12219	Mounting set display 8027/5201		0.06
	13579	Control Unit 5203		4.72