

UDI_0073-815-322 Upgrade 3D Camera

OVERVIEW: The following instruction will cover the process of upgrading Precision i5 system with 3D-Camera. Including the mechanical calibration of the Camera.

APPLICABLE TO: Precision i5 systems with Ralco R221 collimator.

ESTIMATED TIME: 4h

TOOLS: Standard service tools

- Allen Key set
- Cutter
- Torx wrench
- Star wrench
- Small slotting wrench
- 8mm wrench
- 5,5mm hex
- Cable ties



KIT P/N's:

0073-815-324 No camera >> 3D-camera mounted on left side of collimator.



0073-815-325 No camera >> 3D-camera mounted on right side of collimator.



0073-815-326 2D-camera >> 3D-camera mounted on left side of collimator.



0073-815-327 2D-camera >> 3D-camera mounted on right side of collimator.



PROTECTIVE MEASURES:

CAUTION!

Printed circuit boards contain electrostatic highly sensitive components requiring particular care in their handling. Ground before making contact and place only on a conductive surface.

CAUTION!

Remaining energy may exist when the equipment is switched off. Always wait at least 15 seconds before working on the system.

Preparations

1. Turn OFF the system from the generator mini console.

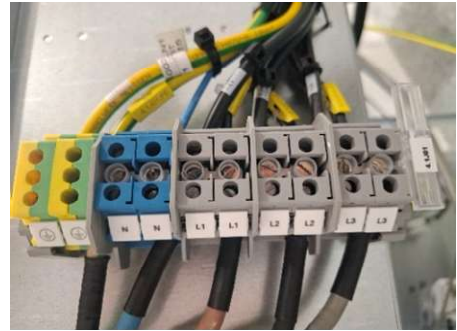


2. **Mechanically separate the incoming 3-phase to the system cabinet.**
This to make sure the cabinet is powerless before operating.



Use a approved voltage tester and confirm there is 0V incoming power to the cabinet. measure between:

- PE – N
- PE – L1
- PE – L2
- PE – L3

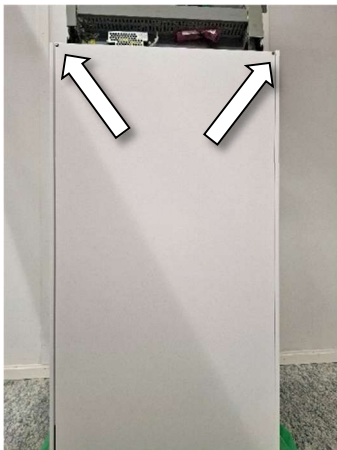


Note! Systems equipped with 2D-camera, should already have some of the necessary component needed, in that case jump to step 23.

3. Remove the top cover from the system cabinet.
4. Fold up electrical plate 4.4 and secure it using two M4 screws on each side.



5. Remove the side cover on the cabinet to access the cable channels.
Remove the two screws. They are located in the upper corner of the side panel.

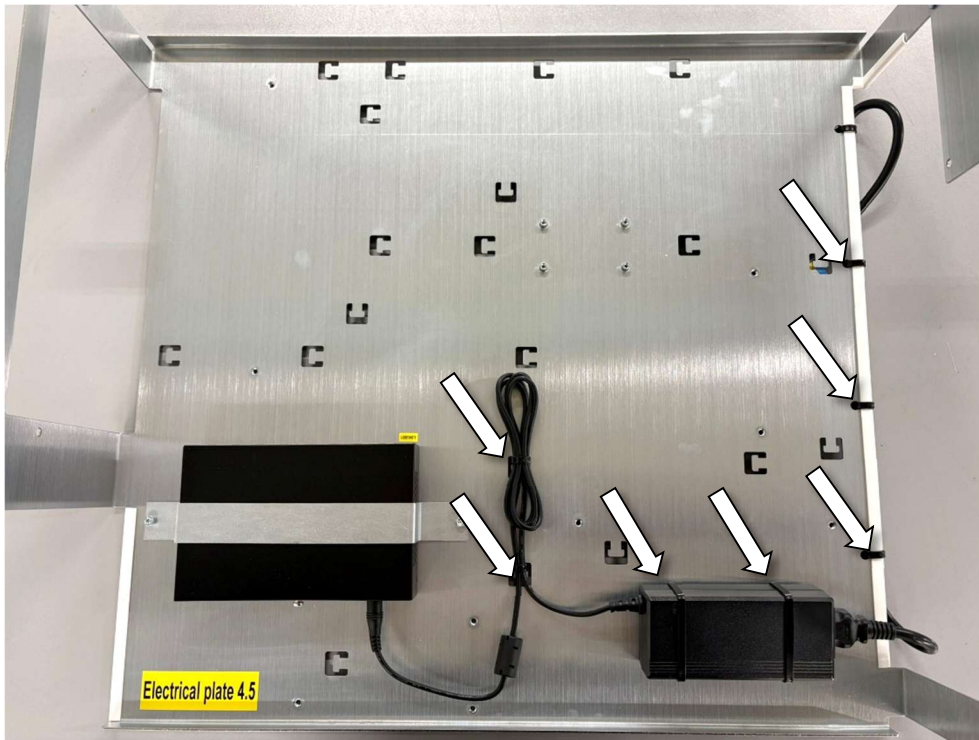


Side assembled

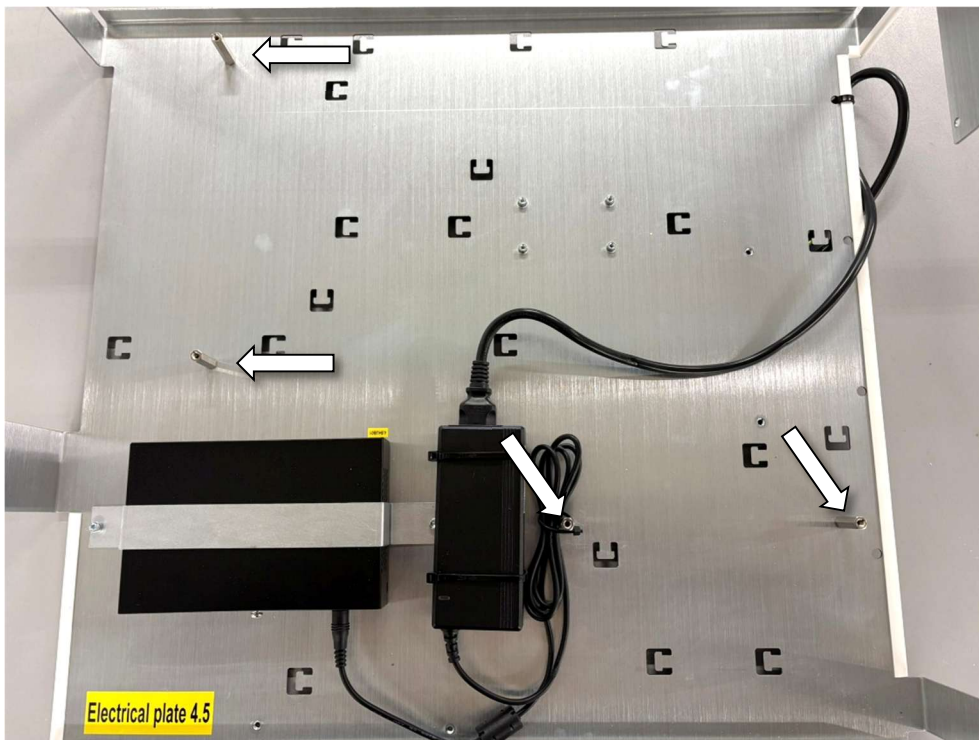


Side removed

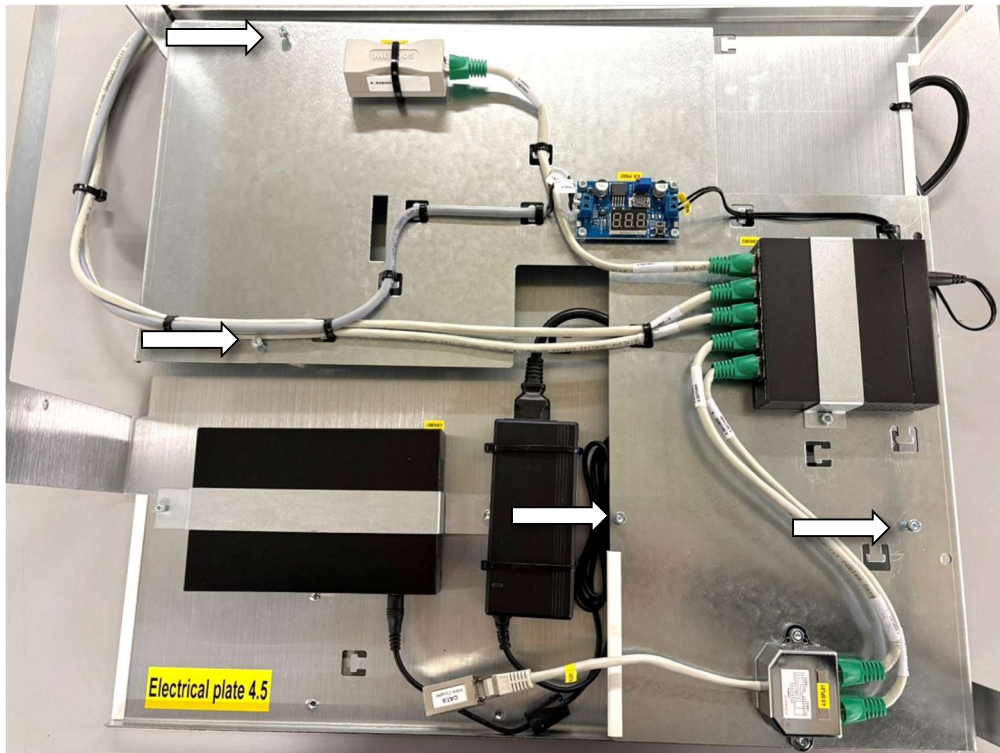
6. Cut the cable ties to make it possible to switch place off the power supply.



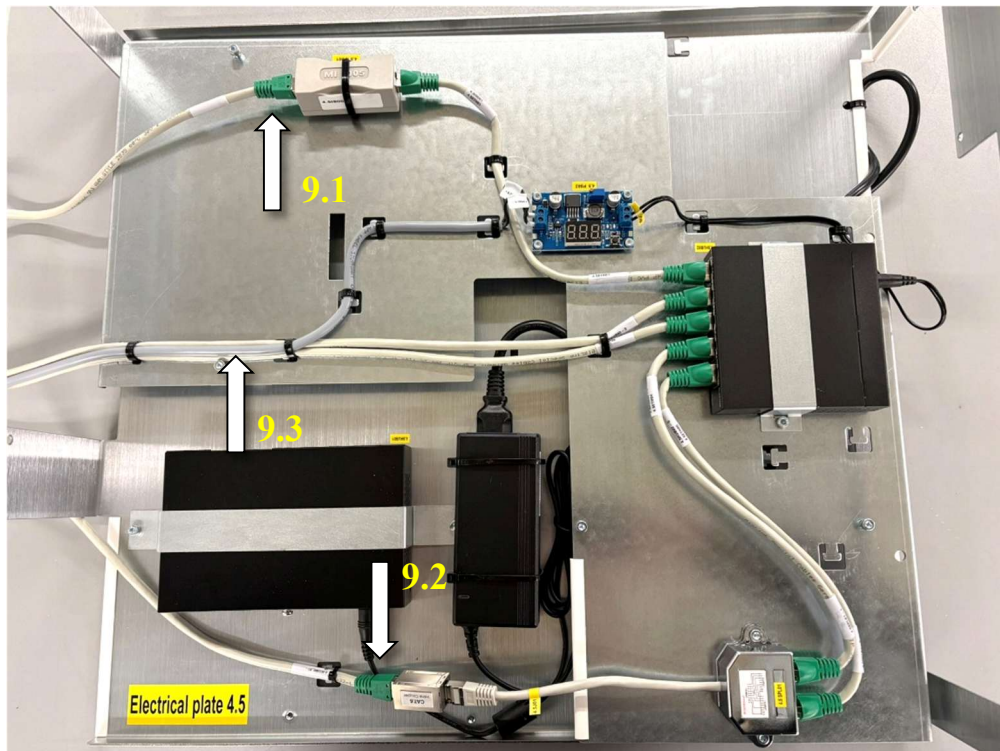
7. Move and install the power supply and the circuit board spacer (15-021) .



8. Mount the electrical-plate included in the upgrade kit on the circuit board spacer with the included screws (m4x8)

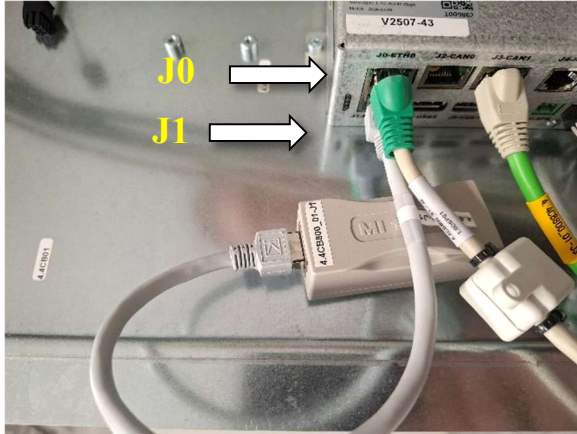


9. Picture of the wiring/connections.



10. Remove the cables attached to your CB800.

- Remove the ethernet cable attached to port J0 on CB800.
- Plug in the cable (J0) you just removed , to the RJ45 splice in step 9 (9.2)
- Remove the cable (J1) from the isolator (CB800-J1) and plug it to the new isolater installed in step 9 (9.1).
- Remove the existing cable and isolator plugged in to your CB800 Port J1

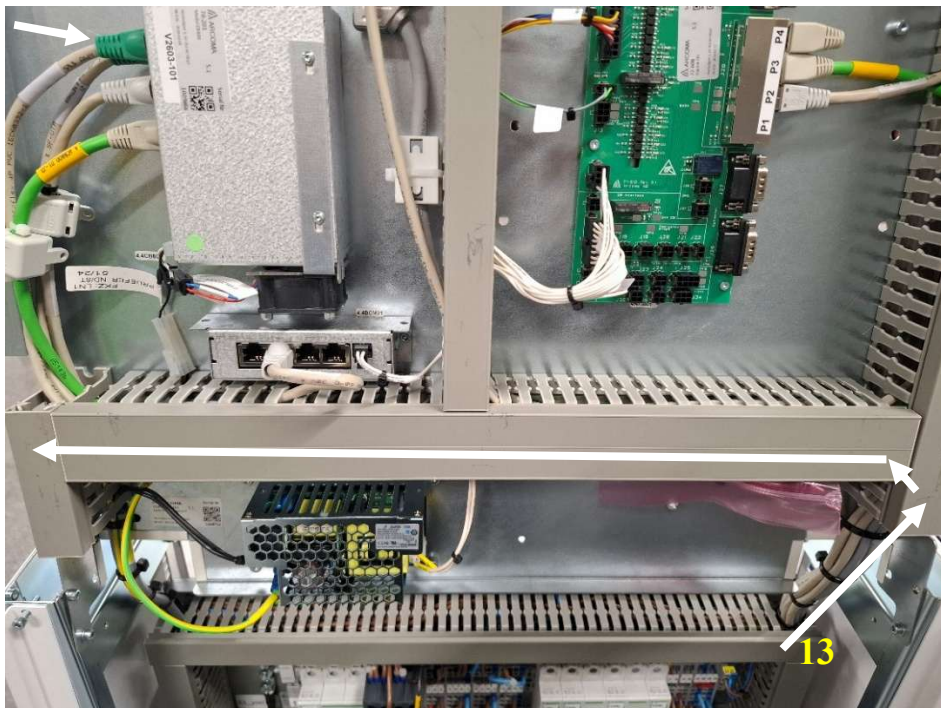


11. Grab the two ethernet cables from step 9 (9.3) and the incoming voltage cable from the voltage regulator.

12. Remove the covers for the cable ducts.

13. Route the cables through the cable channel according to the picture.

- Connect cable J0 (4.5ETH02) → port J0 on CB800
- Connect cable J1 (4.5ETH03) → port J1 on CB800

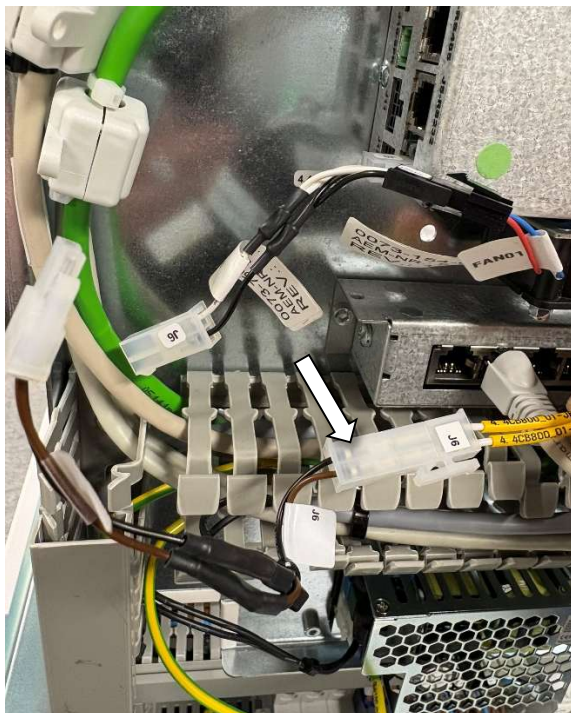


14. Connect the cable coming from the voltage regulator to the contacts J6.

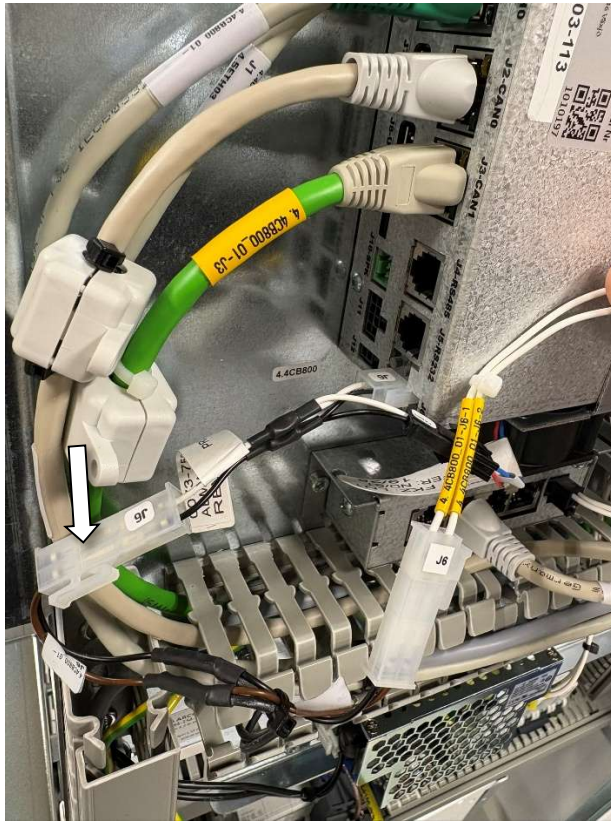
- Disconnect connector J6 (power to CB800)



- Connect the contact J6 (power to CB800) → connector J6 (from the voltage regulator)



- Connect the remaining J6 contact (wiring voltage regulator) with the J6 contact attached to CB800.



15. Reassemble the cable channels.

16. Reassemble the side cover of the generator.



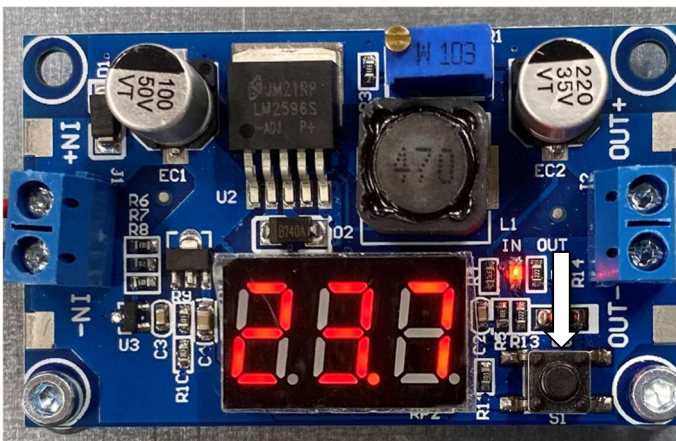
17. Switch the main power ON.



18. Turn the system ON.

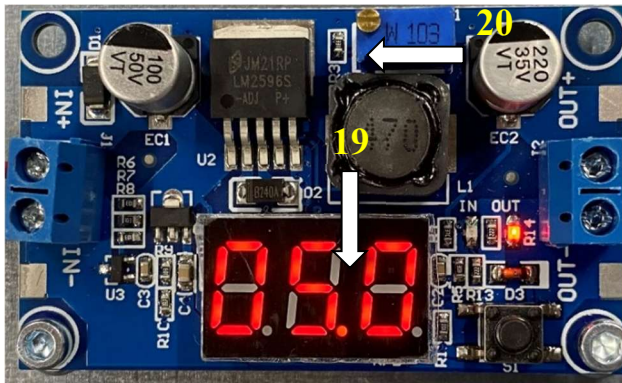


Use button S1 to toggle between input and output voltage display.



19. Confirm that the output voltage of 4.5PS02 is 5,0V.

20. Adjust voltage on VR1 if necessary.



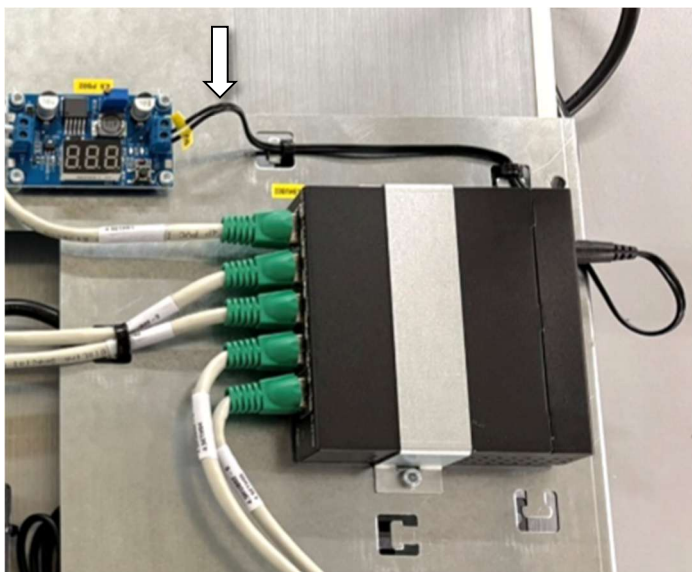
21. Turn OFF the system.



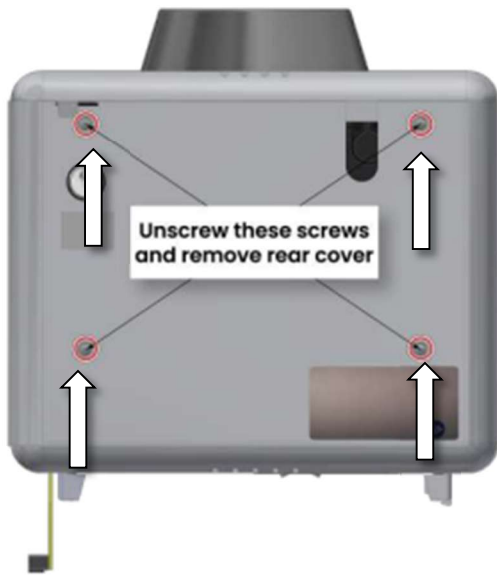
22. In case the two power wires already is installed between the switch and the volatage regulator, move to step 24.

Connect the power cable between TP-Link TL-SG105E and voltage regulator.
The power cable has two leaders.

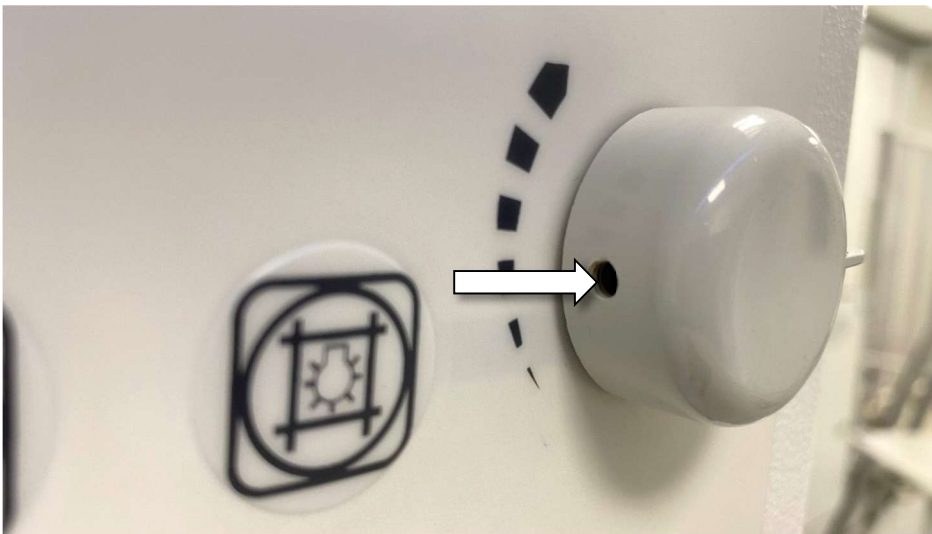
- The one marked with a grey line → connect to the voltage regulator OUT + 5V.
- The one without grey line → connect to OUT – 5V.



23. Remove the rear cover of the collimator.



24. Remove the two knobs holding the front cover of the collimator.

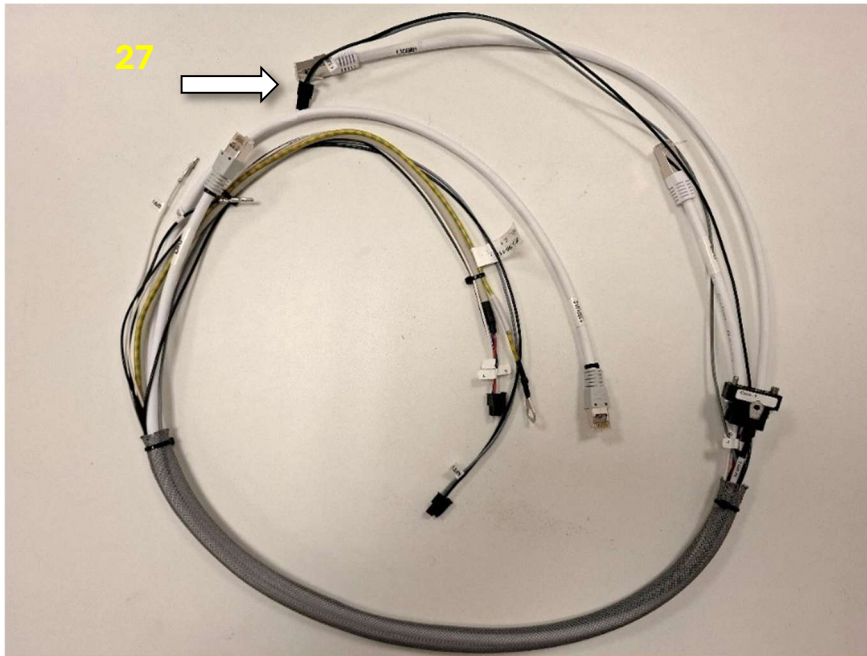


25. Loosen the front cover enough to make sure you can remove the side covers.

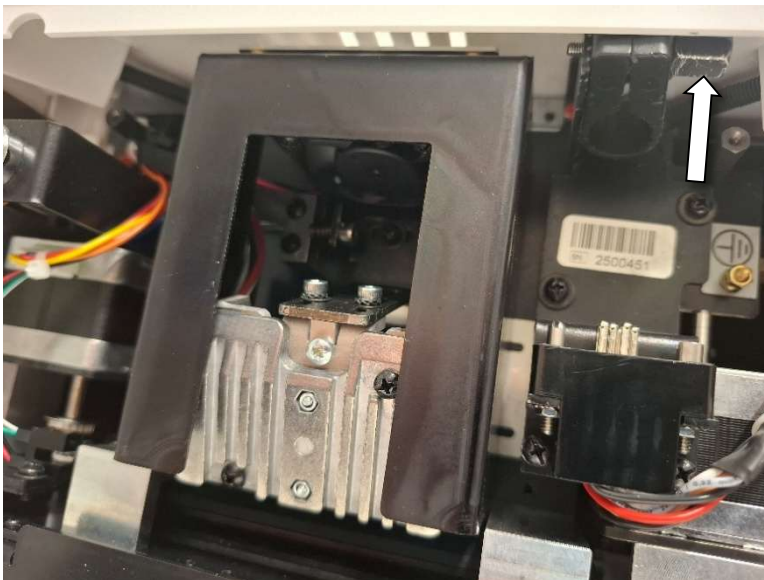
26. Remove the side cover that the 3D-camera will be assembled on.

27. Confirm that you have compatible collimator wiring assembled in your Ralco R221.
- The compatible wiring is labeled with “0073-750-118”
 - Including cables (1.3J08 and 1.3CAM01).

If that’s not the case, make sure you follow the instruction “*Upgrade R221 Collimator*” chapter *Install wiring Ralco R221* before you continue.



28. Remove the screw holding the strain relief to release the collimator wiring.



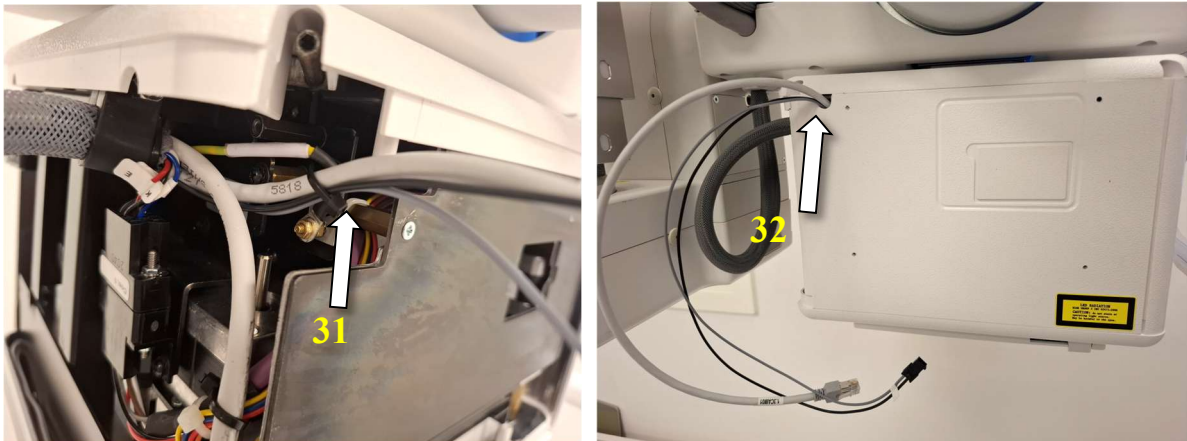
29. Remove the cable ties holding the cable sock from the collimator wiring in both ends.
- Pull the cable 1.3J08 and 1.3CAM01 from the collimator side.
 - Make sure the two cables have a length by at least **50cm** from the cable sock on the collimator side.

- This is to make sure you have enough length to reach out through the side cover to the connectors at the 3D Camera.

30. Assembly back the collimator wiring in the strain relief.

31. Secure the two wires (1.3J08 and 1.3CAM01) with cable ties.

32. Pull out the cables 1.3J08 and 1.3CAM01 through the side cover.

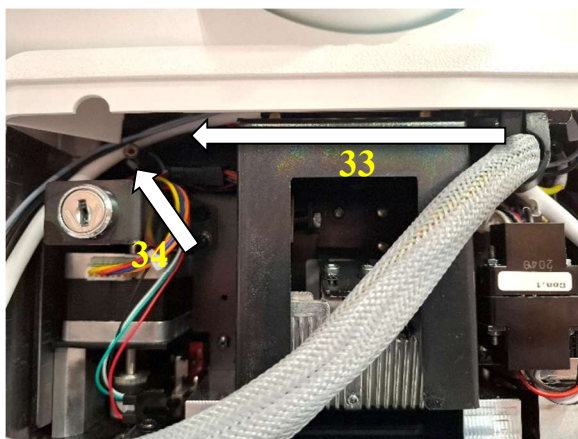


Left side mount

33. Right side mounted 3D-camera.

Route the two cables under and along the top cover of the collimator.

34. Secure the cables with a cable tire around the attachment to screw (left upper corner) that holding the rear cover. This to prevent unexpected damage.



Right side

35. Assemble the the side covers.

36. Reassemble the front cover.

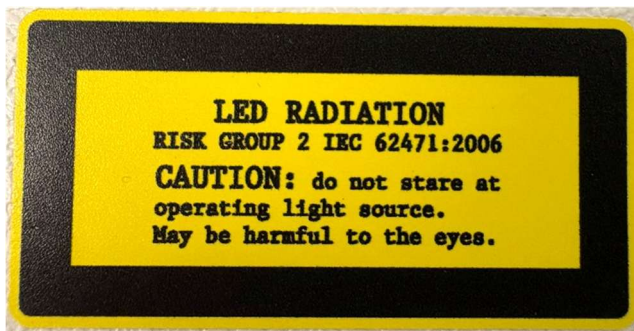
37. Reassemble the back cover.

Installing 3D Camera

Note! We recommend that you make light/x-ray calibration before you mount the bracket to the 3D-Camera.

Note! It's important to not cover any of the labeling that is attached to the side covers of the collimator.

This labeling is the most common one that will be covered by the camera bracket.



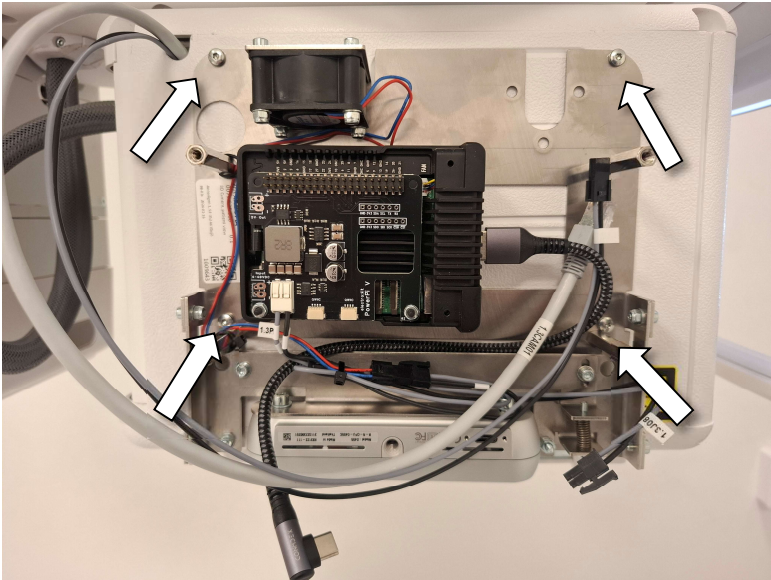
Switch place on the labeling from the side cover (where the 3D Camera bracket will be mounted), to the cover of the 3Dcamera. **Kanske visa detta på en lös kåpa eftersom kameran inte installerats ännu.**



Move any other labeling that might be covered by the 3D-Camera bracket to the cover on the back of the Ralco R221.



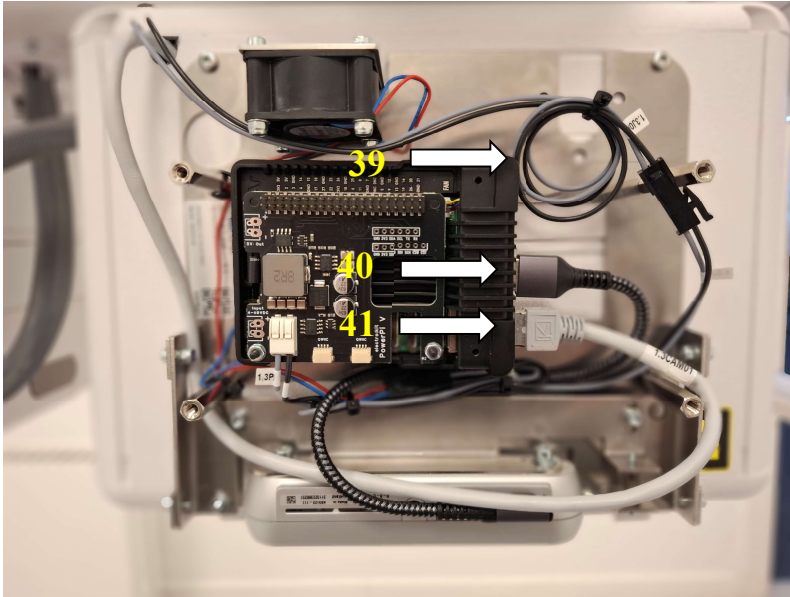
38. Mount the 3D-Camera bracket in the predrilled holes with screws (54-477).



39. Connect the 24v power to the Raspberry pi and fan.

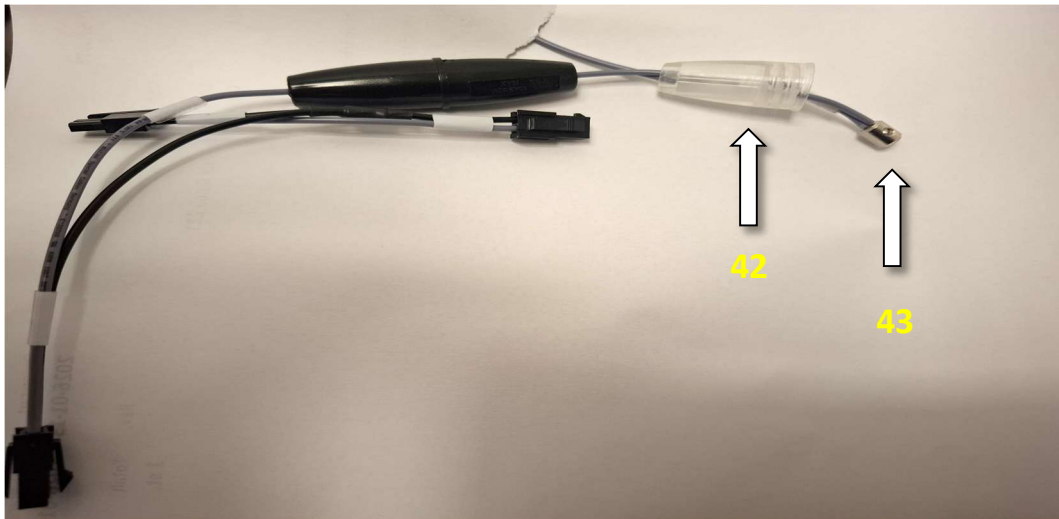
40. Connect the HDMI to the 3D-Camera.

41. Connect the RJ45 to the Raspberry Pi.



42. Open the existing fuse holder (F01) located behind the OTC Display, under the upper tube cover.

43. Assemble the gray wire (included with the kit) with the existing grey wire (incoming 24v).



44. Close the fuse holder, including the 1.5A fuse.

45. Diagram (*figure 1*) describing the connection of 24v power.

- black wires is the existing you have in the system.
- Red wires are the new once

- 46. Power to display unit.
- 47. Power to the raspberry Pi and fan.
- 48. Existing fuse holder.

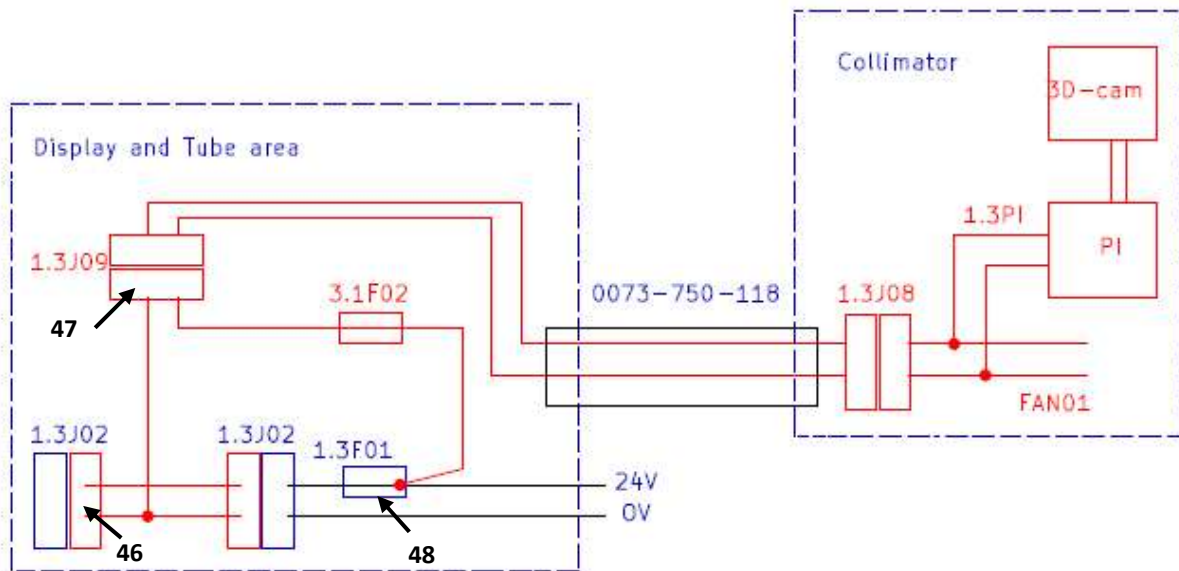
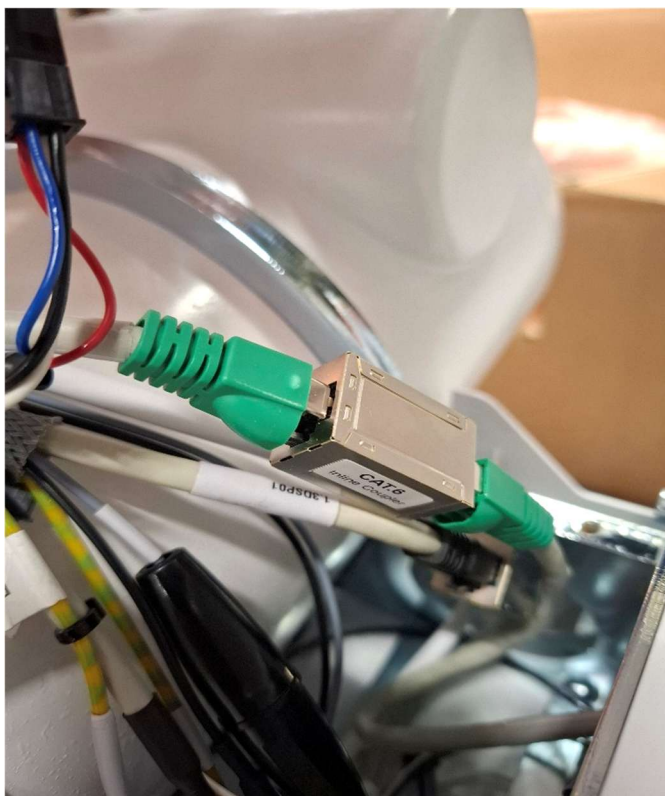
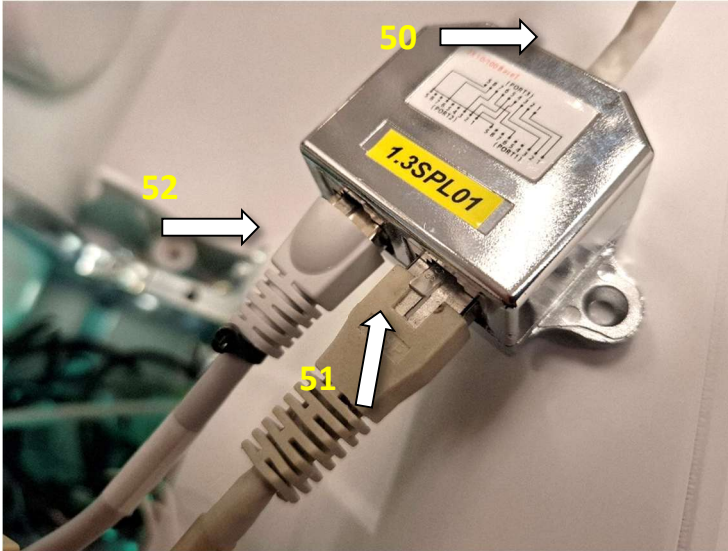


Figure 1

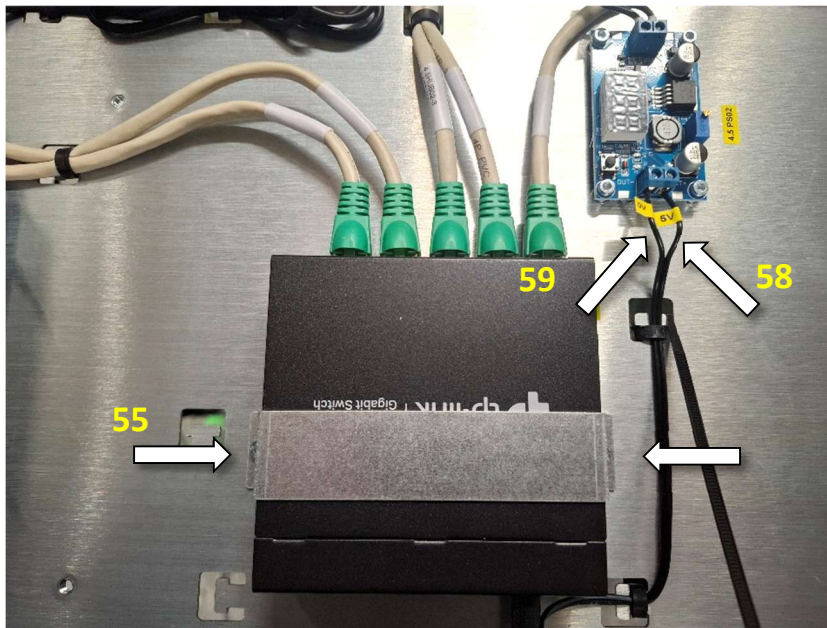
- 49. Separate the ethernet cables from the RJ45 splice.
Systems already equipped with a splitter under the tube cover jump to step [53](#).



50. Connect the 1.3J03 ethernet cable to the 1.3SPL01 (RJ45 splitter).
51. Connect the 1.3J03 from Display to PORT 1 on 1.3SPL01.
52. Connect the 1.3SPL01-2 from raspberry Pi to PORT 2 on 1.3SPL01.



53. Jump forward to step 61 if you already installed the TP-Link TL-SG105E (Step 8).
54. Install the TP-Link TL-SG105E in the system cabinet.
55. Loosen the two screws holding the bracket.
56. Replace the existing switch with TP-Link TL-SG105E.
57. Reassembly the bracket.
58. Connect the 5V → OUT +
59. Connect the 0V → OUT –



Software

60. Turn ON the system using the generator mini console.



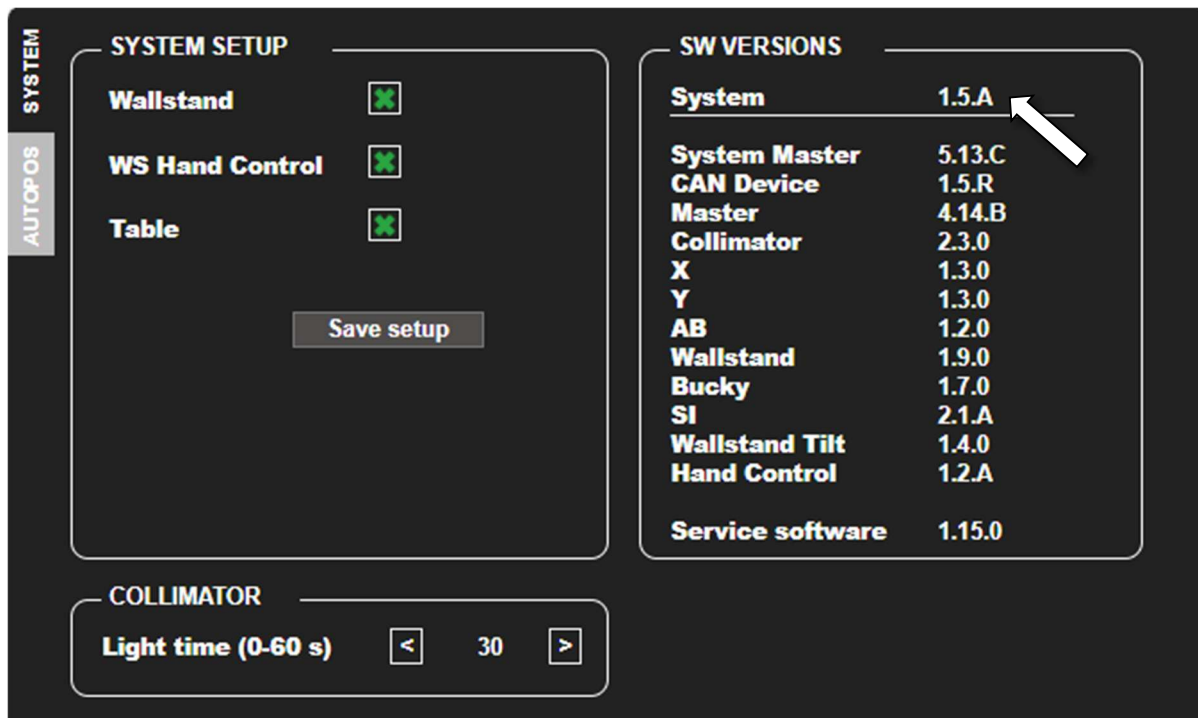
Check current software version of the system

61. Press and hold the Settings icon in lower left corner of the display.



62. Select the *SERVICE* tab and *SETTINGS* menu. Enter password *1895*.

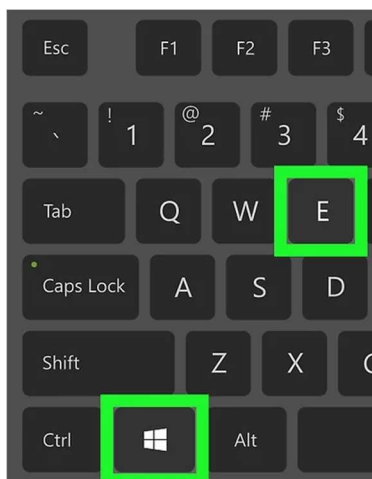
63. The requirement is System software version 1.5.0. Confirm that System software is 1.50 or higher. It's recommended to use the latest software. Upgrade if necessary.



Calibration

Follow the steps below to start the software application: Camera Calibration Tool

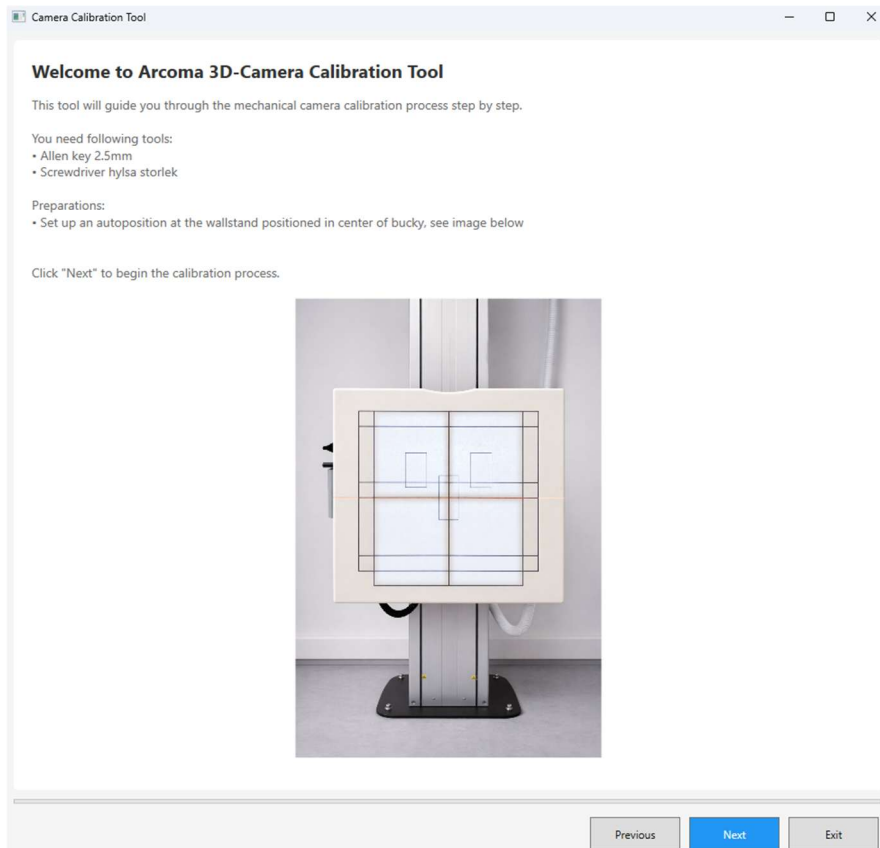
64. Open file Explorer on the intended computer (Win + E).



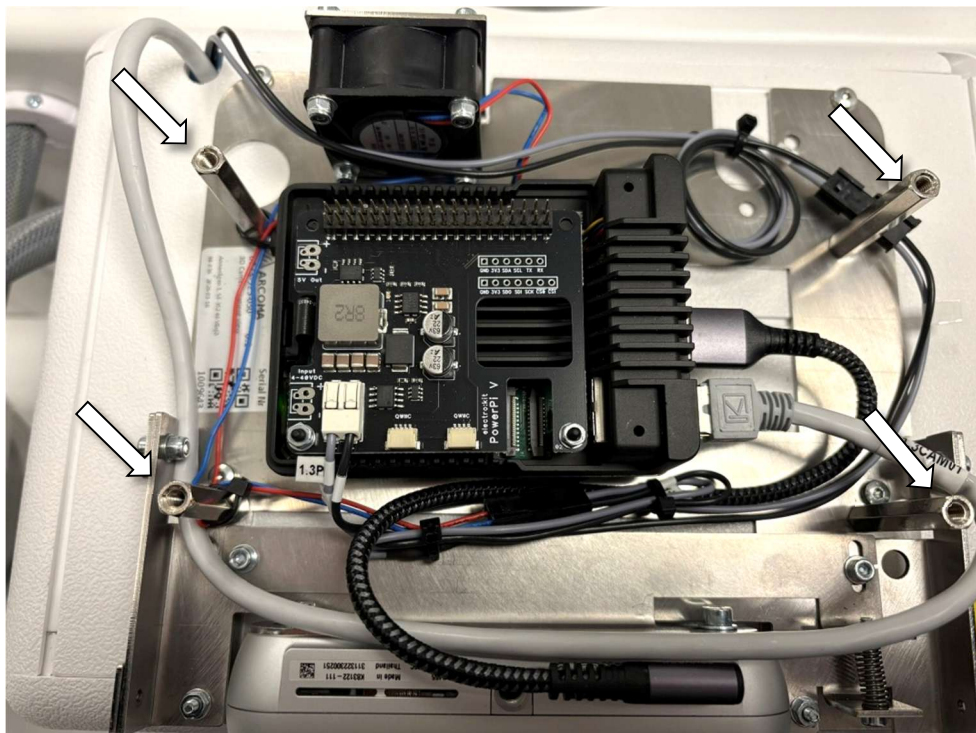
65. Navigate to This PC → C:\Arcoma\ArcomaBin\

66. Run CameraCalibrationTool.exe

67. Follow the instructions in the application to calibrate the 3D-Camera.



68. Use the four (4) screw spacers to attach the camera cover.



69. Assemble the camera cover (K6S M4x10).



END OF DOCUMENT