

symgery

T SYM

Installation Guide



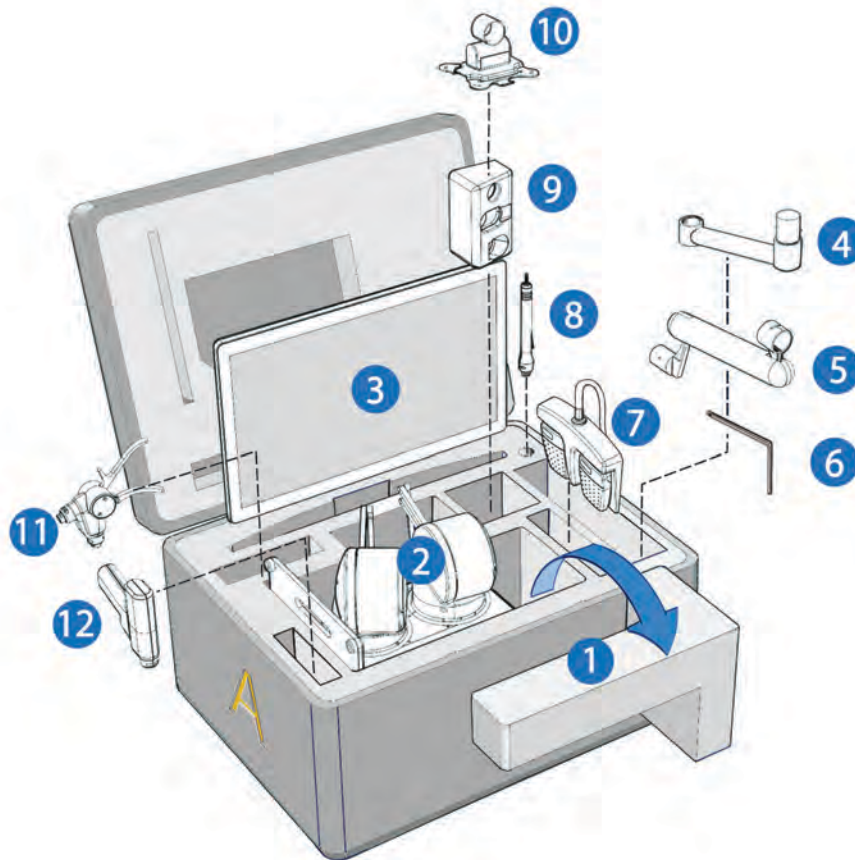
Revision 4 — April 2023


Inventory Check

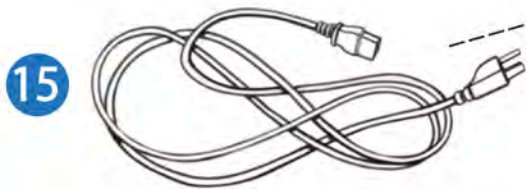
The T SYM simulator is delivered in two separate cases: **Crate A** and **Crate B**

Crate A Contents:

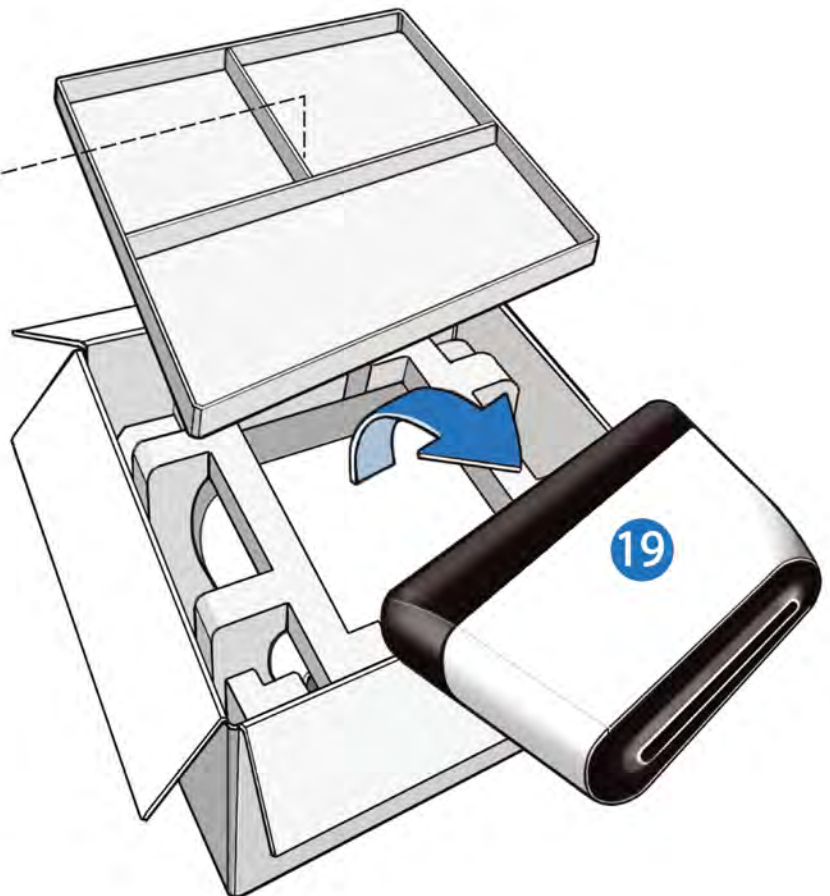
- | | |
|--------------------------------|--------------------------|
| 1. Protective Foam | 7. Foot Pedal |
| 2. Haptic Robot | 8. Straight Tool Handle |
| 3. Monitor | 9. Tool Tray |
| 4. Monitor Arm (1 of 3) | 10. Monitor Arm (3 of 3) |
| 5. Monitor Arm (2 of 3) | 11. Closing Handle |
| 6. Monitor Arm Tensioning Tool | 12. Pistol Handle |



 the computer or cables may not match exactly the images.



- 13. Digital Cable
- 14. Haptic AC Cable
- 15. Main AC Cable
- 16. Monitor Power Adapter
- 17. 3-way AC Splitter
- 18. Wireless Keyboard
- 19. Computer

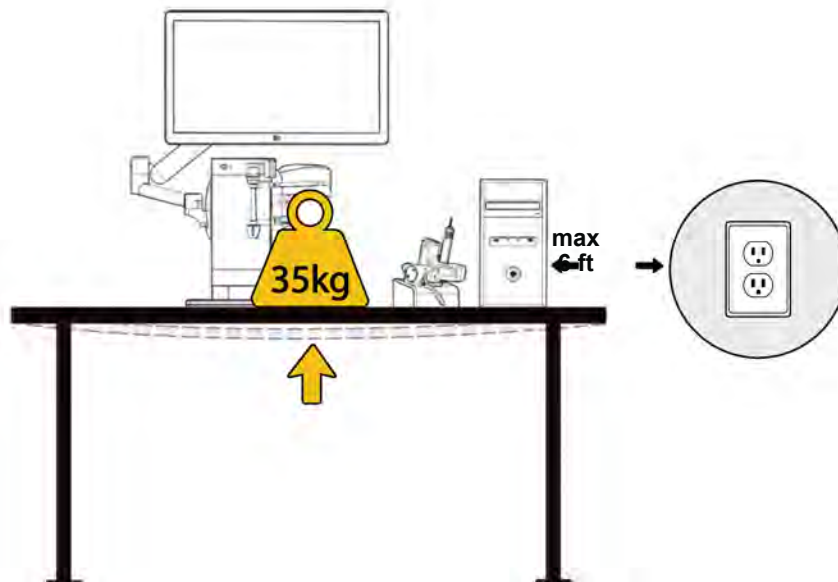


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Pre-setup Preparation

Table (not included) height & weight capacity:

- The table should be of standard table height, ie. 29-30", and have a surface area of minimum 24" deep x 36" long
- The table should be sturdy enough to support the weight of the simulator (75 lbs / 35 kg)



AC Source

- There should be an AC outlet within 6 feet of where the simulator will be placed.

Internet Connection

- The computer is equipped with WiFi connectivity and may optionally come with a wired network adapter and cable. Being constantly connected to the Internet will allow Symgery to remotely install updates and software improvements.

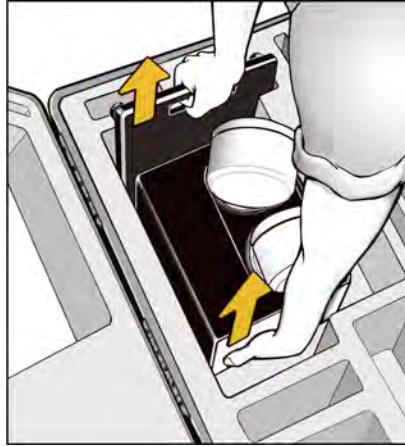
Note: See section on software updates for additional details.

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Placement

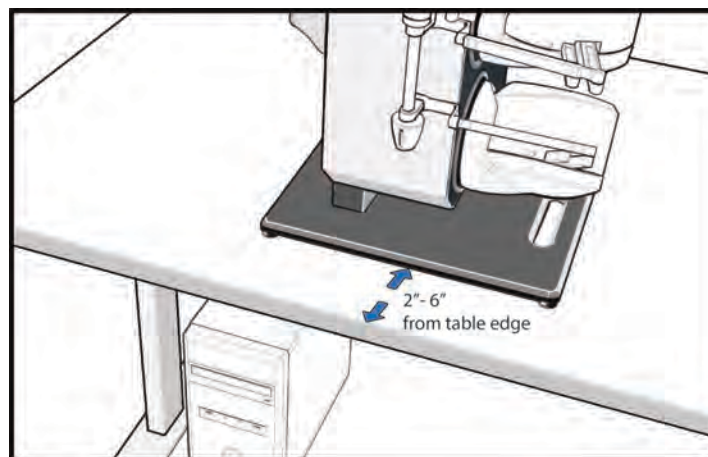
1.1 After removing foam (1) from crate A, lift the haptic robot (2) onto the table.

TIP: To remove the haptic robot from the crate, grasp the bottom plate through its handle with one hand and reach underneath the top of the haptic with the other hand. Simply lift upward:



IMPORTANT: **DO NOT** lift the haptic robot using the white plastic 'shoulders'. Safely lift the entire robot **using the provided handle** on its base and the top of its metal enclosure

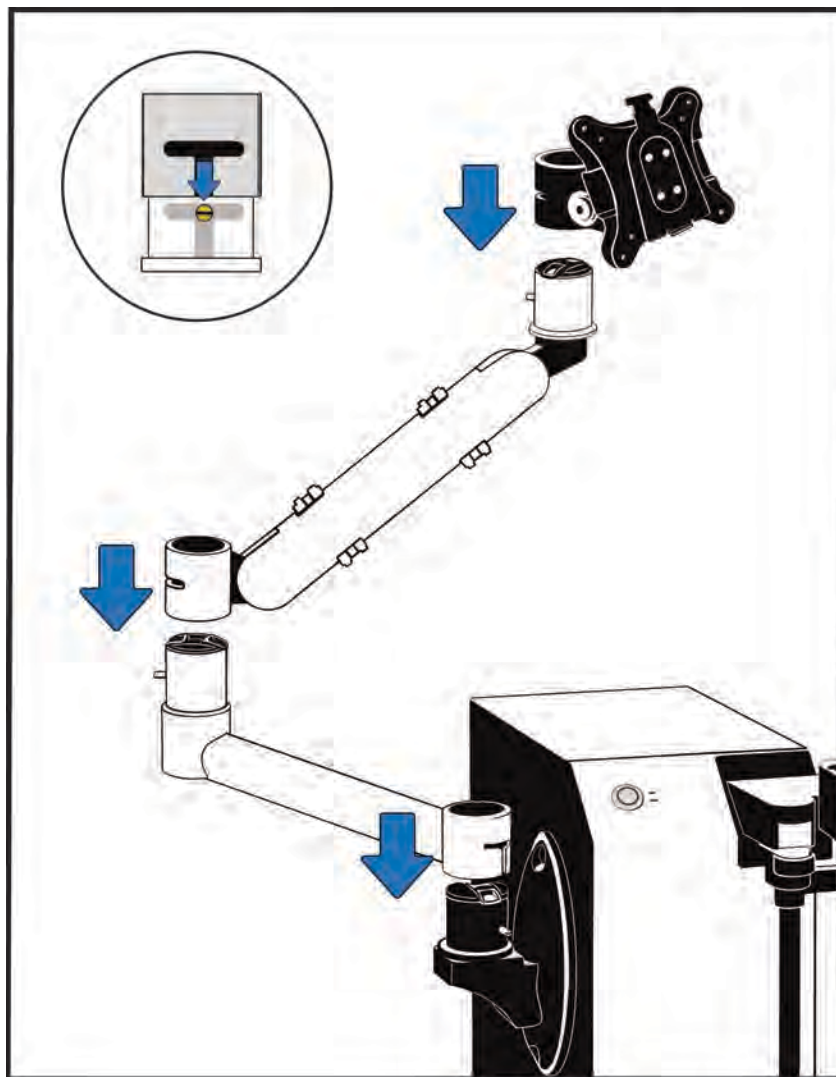
For optimal performance, the front edge of the robot base should be approximately 2 ~ 6 in. from the table edge.



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Monitor Arm Assembly

- 2.1 Remove part (4), (5) and (10) from Crate A.
- 2.2 Attach part (4) onto the haptic robot as shown below. Take care to correctly align the pin on the male part with the T slot on the female part.
- 2.3 Repeat with part (5) and (10).
- 2.4 Adjust the wide cable management clips to roughly the position shown.

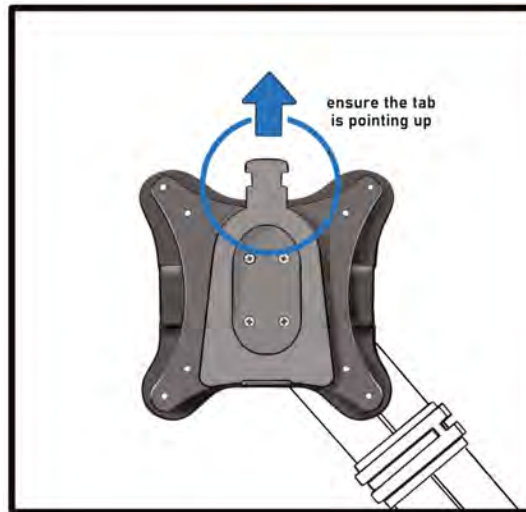


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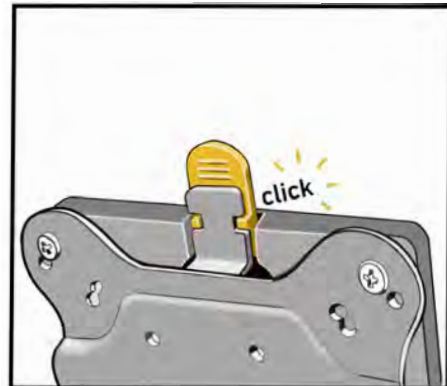
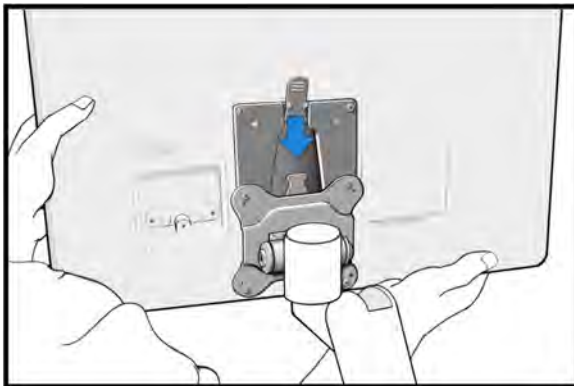
Monitor Mounting

The monitor “connector plate” slides onto a mating end already attached at the top of the monitor arm

3.1 Ensure the monitor arm’s connector plate is facing upward like so:



3.2 Attach the monitor (3) to the top of the arm:



CAUTION: Ensure that both connector plates remain parallel to one another and **fully engage** when lowering the monitor into place, until a click can be heard.

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3.3 Swivel the monitor arm around until the monitor rests directly above the haptic robot.

This is the assumed starting position for the monitor which can then be adjusted by the user according to preference.

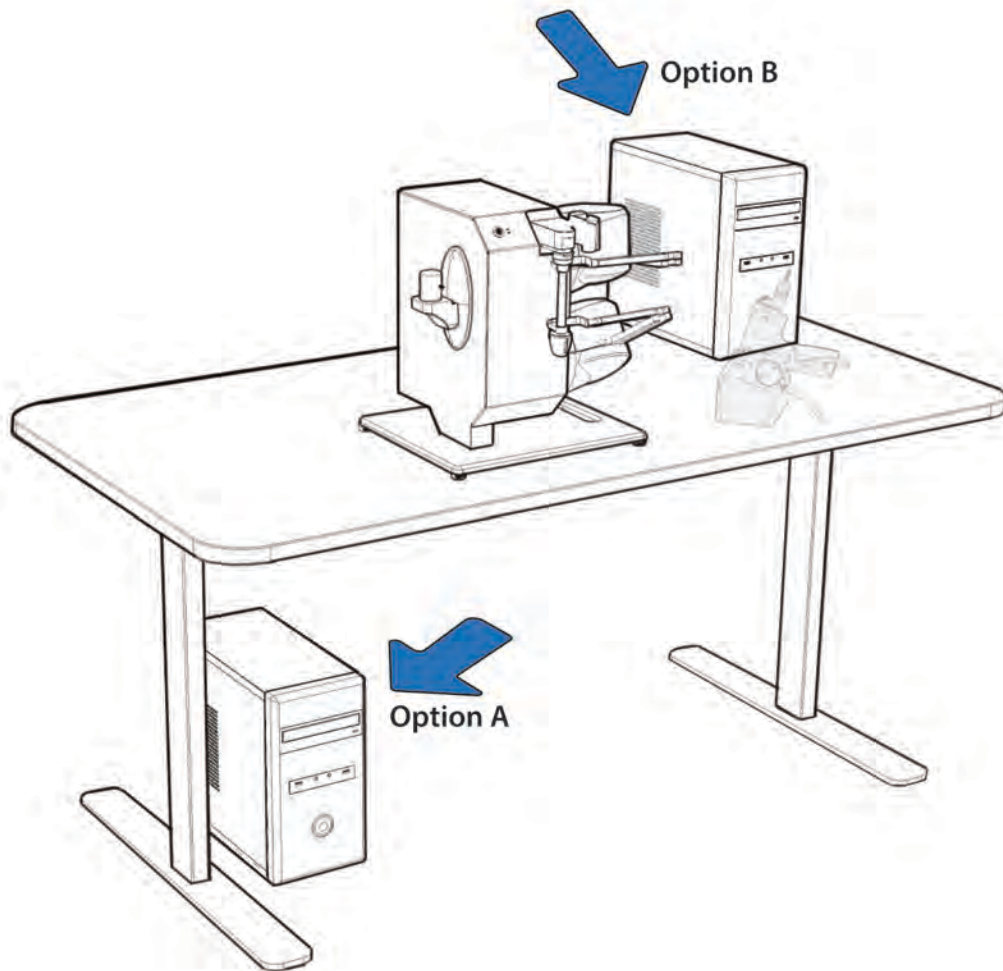
The simulator will now look like this:



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Computer and Foot Pedal

- 4.1 Retrieve the computer (19) from Crate B and place it either under the table [Option A] or to the right of the haptic [Option B]:

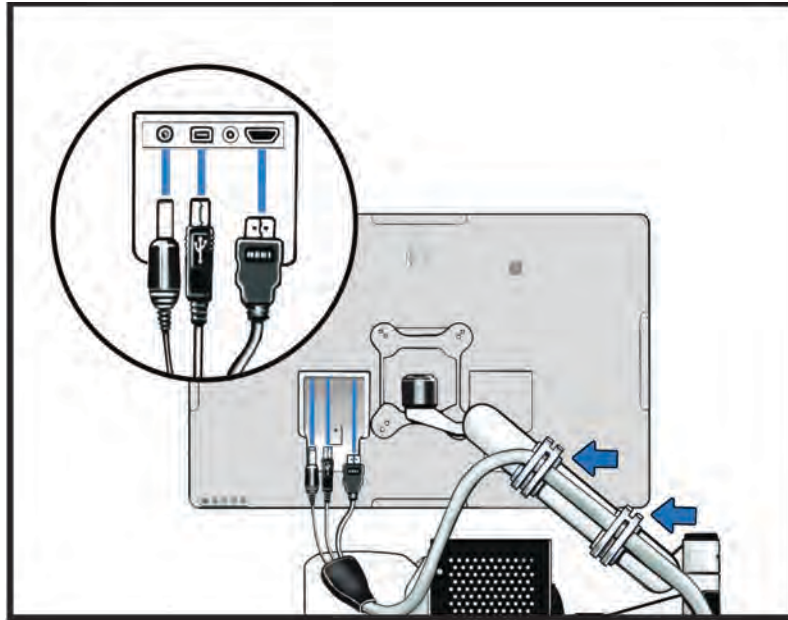


- 4.2 Retrieve the foot pedal (7) from Crate A and position it under the table, directly below the haptic.

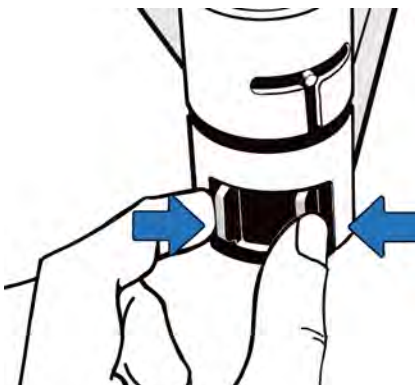
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Cable Connections

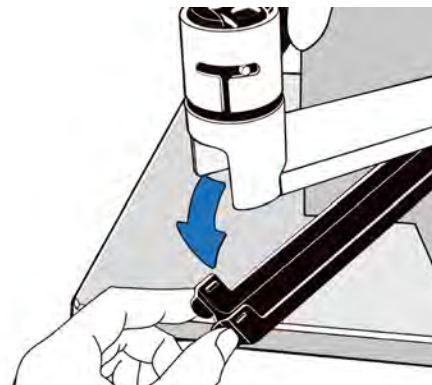
- 5.1 Retrieve the Digital Cable (13) from Crate B.
- 5.2 Starting **from the monitor**, connect the HDMI, USB and DC Power connectors:




- 5.3 Secure the cable with the two provided clips along the top arm segment.
- 5.4 Route the cable inside the short monitor arm segment (4) like so:

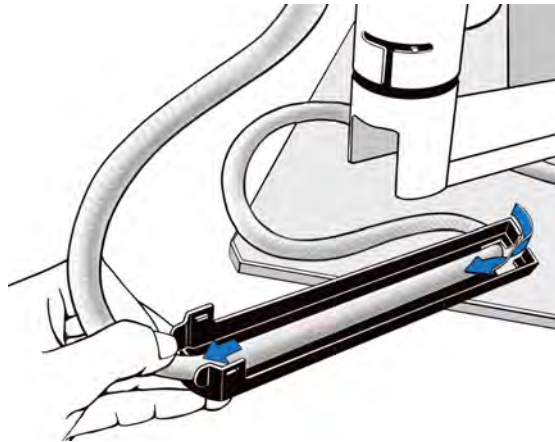


Pinch the two flaps together...



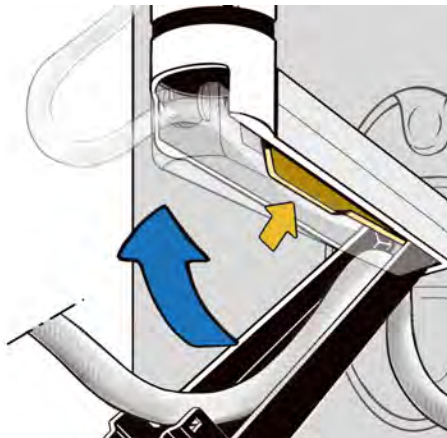
... and push downward

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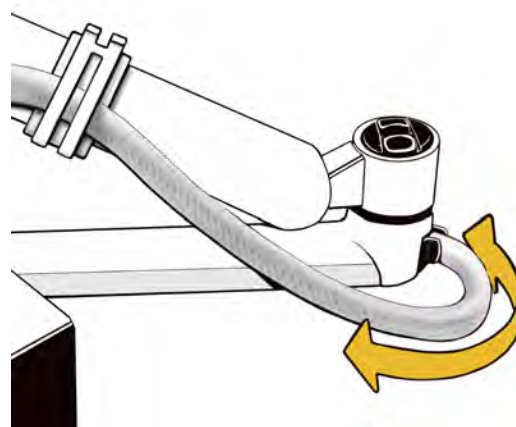


Insert the cable through the opening at the far end lay it along the plastic cover

TIP: Reduce the slack in the cable coming down from the monitor into the plastic cable management part. The loop going into the arm should be tight enough that the middle part of the cable will reach the back of the haptic, but not so much that the monitor arm cannot freely pivot.



Insert the far end first, then pivot the near end back into its retaining clips.

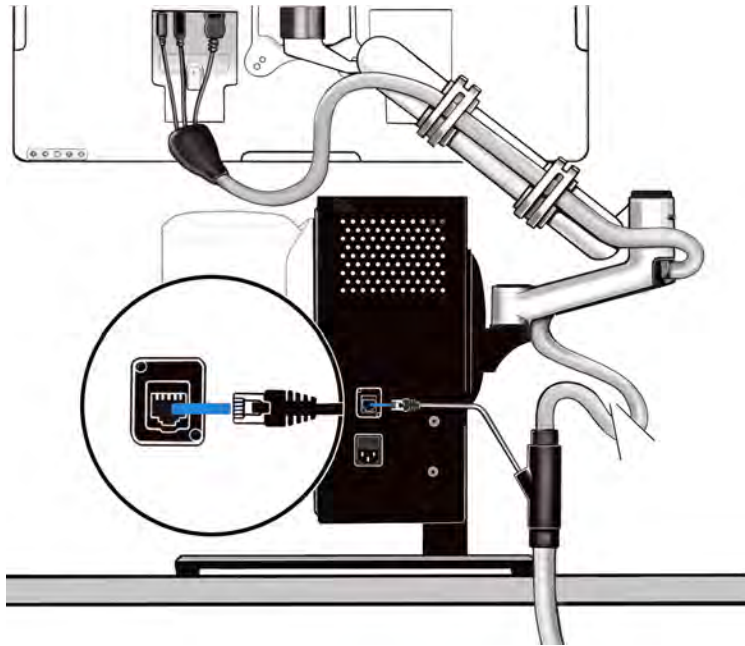


Ensure the cable has just enough play so the arm pivots freely

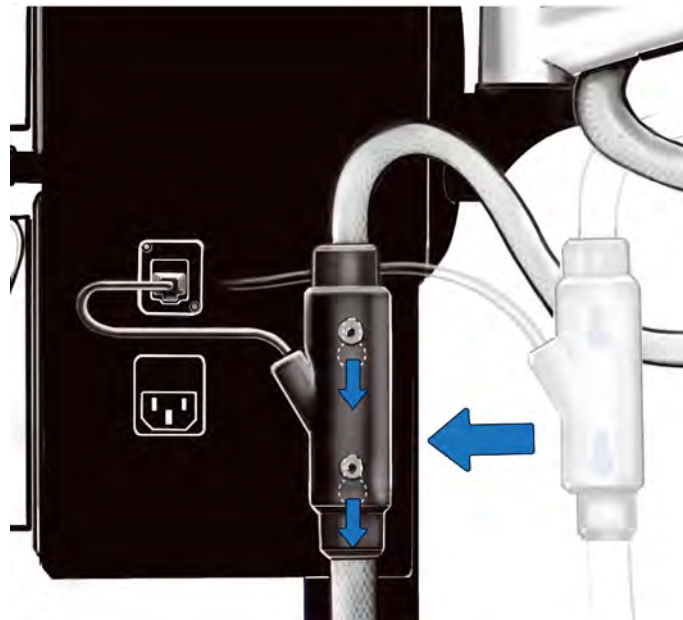
TIP: the cable may hit against the metal divider inside the monitor arm segment and prevent closing up. Simply wedge the cable to either side of the divider until the plastic part can click back into place.

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- 5.5 Connect the network cable from the middle portion of the data cable into the back of the haptic:

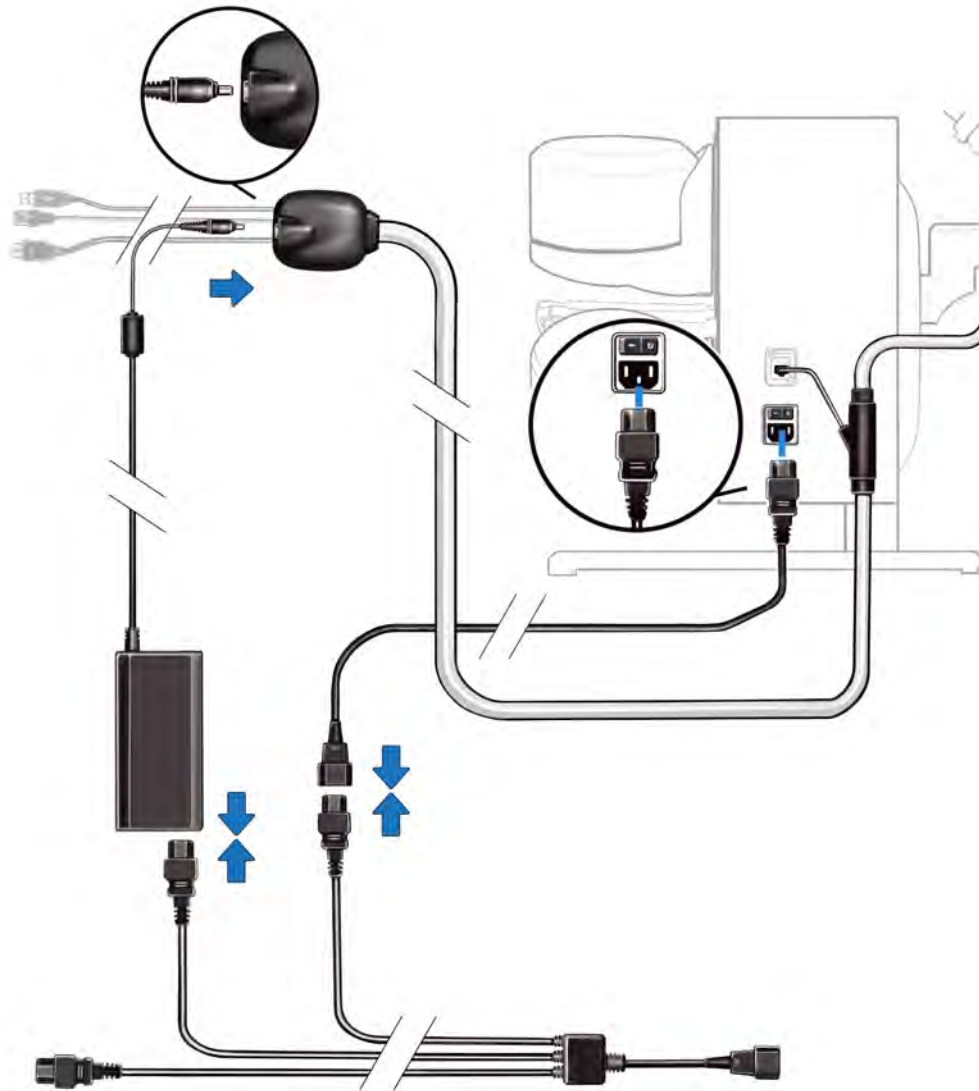


- 5.6 Using the two protruding anchors, slide the black plastic portion of the cable onto the back of the haptic:



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- 5.7 Retrieve the black Haptic AC Cable (14) from Crate B, and attach it to the back of the haptic:



- 5.8 Route both the Digital Cable (13) and the Haptic AC Cable (14) down the back of the table towards the computer.

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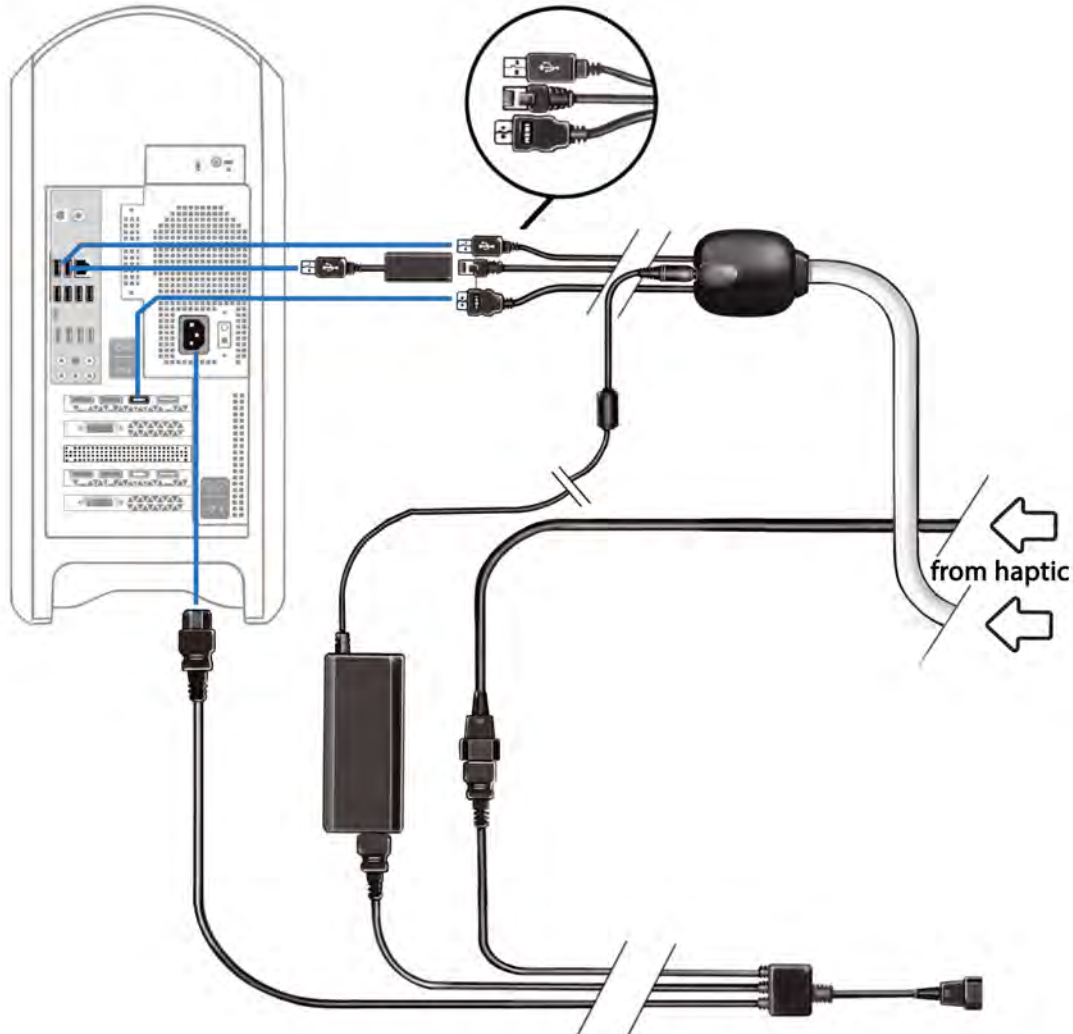
5.9 Retrieve the following from Crate B:

1. Monitor Power Adapter (16)
2. 3-way AC Splitter (17)

5.10 Connect the Monitor Power Adapter (16) into the Data Cable end connector as shown above.

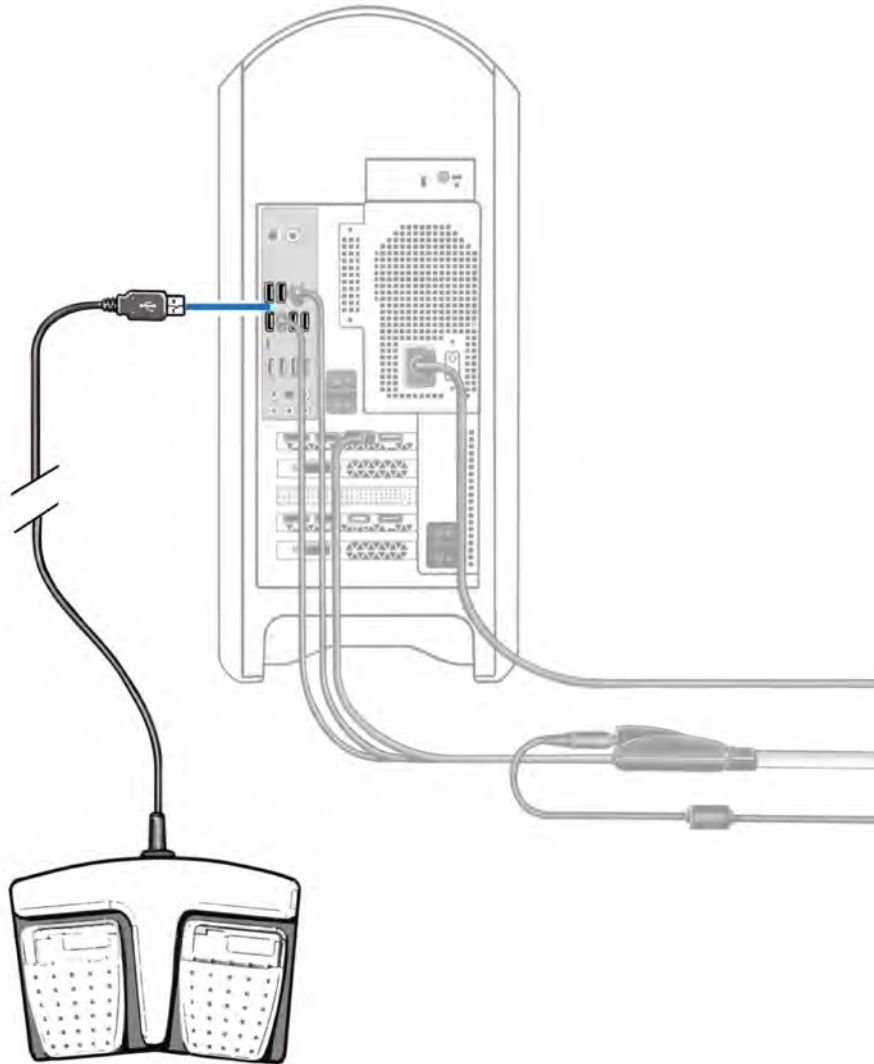
5.11 Attach the 3-way AC Splitter as depicted above.

5.12 Attach the connectors from the Data Cable and the remaining AC cord from the splitter to the back of the computer as shown. **For the Ethernet Cable connection use the USB 3.0 Ethernet Adapter provided.**

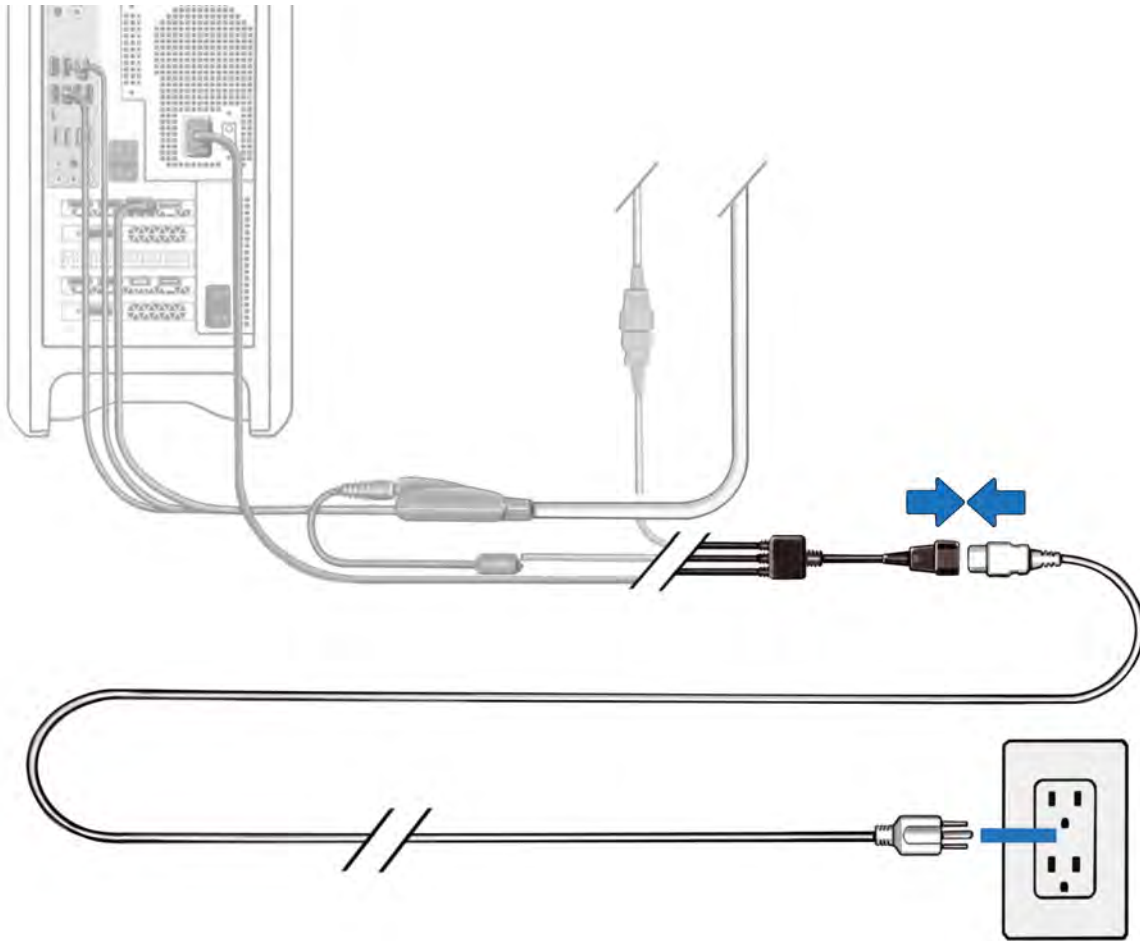


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5.13 Connect the USB Foot Pedal to any free USB port.



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5.14 **LASTLY**, connect the AC Power Cord (15) to AC mains.

5.15 Retrieve the Tool Tray (9) from Crate A and place on the table.

5.16 Retrieve the surgical tool handles (8), (11) and (12) from Crate A and place them into the tool tray.

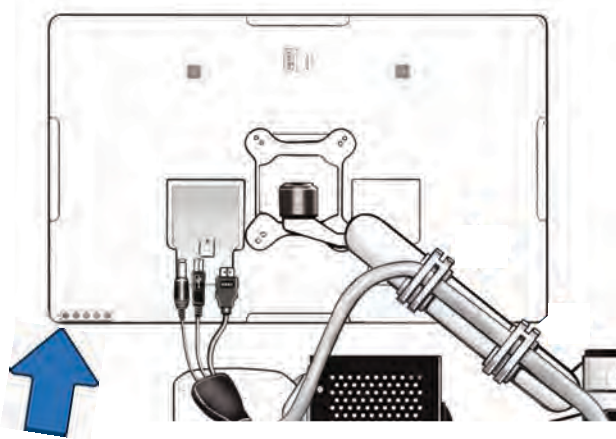
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Verifications & Power on


- Go back to the back of the monitor and check that the three cables have not come undone. Pay attention to the leftmost DC Power connector and ensure it is fully inserted.
- Check that the Data Cable loop at the “elbow” of the monitor arm is sufficiently loose to allow proper movement of the arm.
- The monitor may not come on by itself. You may need to press its power button upon first power up.




- The Wireless Keyboard's power switch is in the 'off' position at delivery. Turn it on as needed.
 - Note: the Wireless Keyboard's USB dongle is already attached to the computer (underneath the computer's front bezel)
- The computer has a secondary power switch at its back close to its AC inlet. Ensure it is in the 'on' position.
- If no audio is heard, the volume control keys on the Wireless Keyboard may be used to adjust the level.

If the computer hasn't already turned on, press the power button.

The power on sequence may take up to 2 minutes during which time the monitor may remain black. This is normal.

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Notes

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