DELL P5525QC Monitor

Simplified Service Manual

Version: 01

Date: 2024/08/09

1. Important Safety Notice

Product Announcement:

This product is certificated to meet RoHS
Directive and Lead-Free produced definition.
Using approved critical components only is
recommended when the situation to replace
defective parts. Vender assumes no liability
express or implied, arising out of any unauthorized
modification of design or replacing non-RoHS
parts. Service providers assume all liability.

Qualified Repairability:

Proper service and repair is important to the safe, reliable operation of all series products. The service providers recommended by vender should be aware of notices listed in this service manual in order to minimize the risk of personal injury when perform service procedures. Furthermore, the possible existed improper repairing method may damage equipment or products. It is recommended that service engineers should have repairing knowledge, experience, as well as appropriate product training per new model before performing the service procedures.

NOTICE:

- ! To avoid electrical shocks, the products should be connected to an authorized power cord, and turn off the master power switch each time before removing the AC power cord.
- ! To prevent the product away from water or expose in extremely high humility environment.
- ! To ensure the continued reliability of this product, use only original manufacturer's specified parts.
- ! To ensure following safety repairing behavior, put the replaced part on the components side of PWBA, not solder side.

- ! To ensure using a proper screwdriver, follow the torque and force listed in assembly and disassembly procedures to unscrew screws.
- ! Using Lead-Free solder to well mounted the parts.
- ! The fusion point of Lead-Free solder requested in the degree of 220°C.

2. Exploded view diagram with list of items

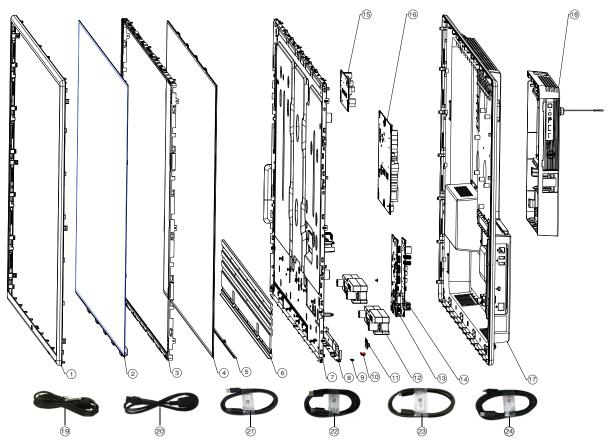


Figure 1. Major components

Item	Description	Q'ty	Remark
1	Front Bezel	1	
2	Open Cell	1	
3	Middle Frame	1	
4	OPT	1	
5	Light Bar	1	
6	Heat Sink	1	
7	LCM Back Cover	1	
8	Source BD BKT	1	
9	Power LED	1	
10	IR Board	1	
11	Joystick	1	
12	Speaker	1	Only for EMEA regions
13	Interface Board	1	_
14	USB Board	1	
15	Driver Board	1	
16	Power Board	1	
17	Rear Cover	1	
18	PC Box Holder	1	
19	Power cable (varies by country)	1	Refer the below note
20	Power cable for connecting Optiplex system to display	1	Refer the below note
21	USB 3.2 upstream cable (enables the USB ports on the display)	1	Refer the below note
22	DisplayPort 3M cable (DP to DP)	1	Refer the below note
23	USB-C Gen1 1.8M cable (C to C)	1	Refer the below note
24	HDMI 3M cable	1	Refer the below note

NOTE:

For replacement of power cord, connectivity cable and external power supply (if applicable), contact Dell:

To contact Dell for sales, technical support, or customer service issues, see www.dell.com/contactdell.

NOTE: Availability varies by country or region and product, and some services may not be available in your country/region.

NOTE: If you do not have an active Internet connection, you can find contact information about your purchase invoice, packing slip, bill, or Dell product catalog.

3. Wiring Connectivity Diagram

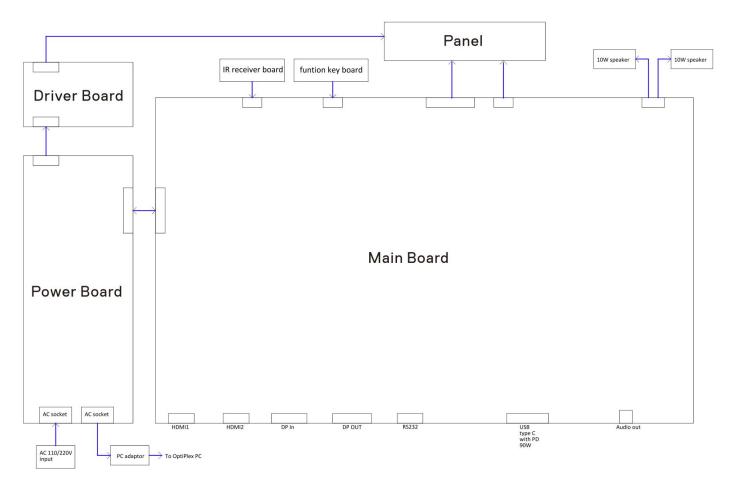
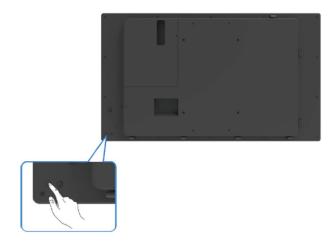


Figure 2. Wiring Connectivity Diagram

4. How to connect and disconnect power cable/ connectivity cable

WARNING: To change power cable/ connectivity cable, switch off power before unplugging the cable and replugging in required cable.

Turn on the monitor



External PC connection

Connecting the USB cable

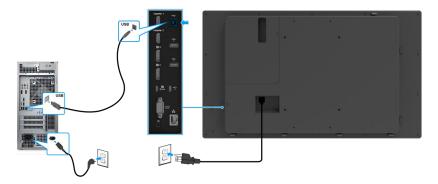


Figure 3. Connecting the USB cable

Connecting the HDMI cable

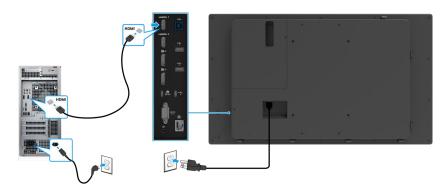


Figure 4. Connecting the HDMI cable

4. How to connect and disconnect power cable/ connectivity cable

Connecting the DP cable

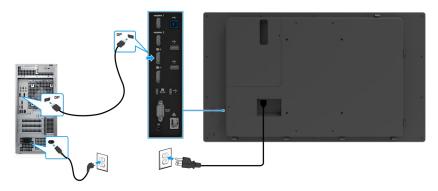


Figure 5. Connecting the DP cable

Connecting the USB Type-C cable

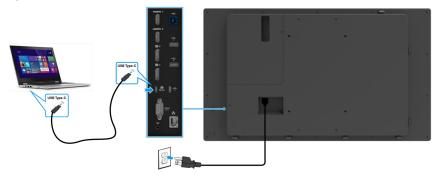


Figure 6. Connecting the USB Type-C cable

Connecting the monitor for DP Multi-Stream Transport (MST) function

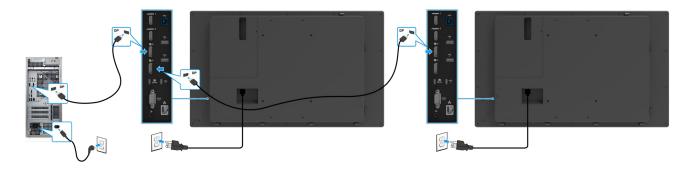


Figure 7. Connecting the monitor for DP Multi-Stream Transport (MST) function

Connecting the monitor for USB-C Multi-Stream Transport (MST) function

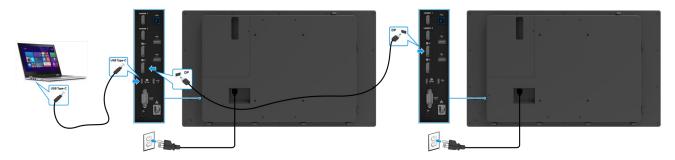


Figure 8. Connecting the monitor for USB-C Multi-Stream Transport (MST) function

Connecting the OptiPlex (optional)

Connecting the USB cable

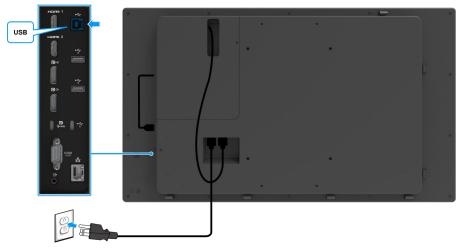


Figure 9. Connecting the USB cable

Connecting the HDMI cable

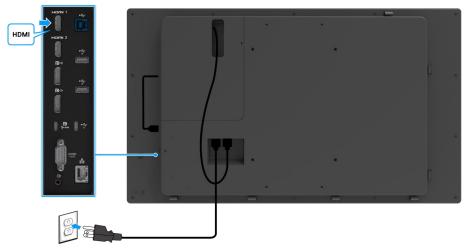


Figure 10. Connecting the HDMI cable

Connecting the DP cable

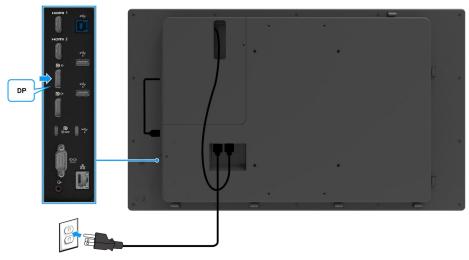


Figure 11. Connecting the DP cable

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NOTE:

This "Disassembly and Assembly Procedures" is for EMEA only, not for other regions. Please note that Dell will deem warranty void if any disassembly is done on the monitors.

Tool Required:

List the type and size of the tools that would typically can be used to disassemble the product to a point where components and materials requiring selective treatment can be removed.

Tool Description:

- Screwdriver(Phillip head) #1
- Screwdriver(Phillip head) #2
- Penknife

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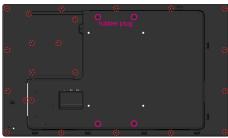
S3

- Soldering iron and absorber

5.1 Disassembly Procedures:

Loose the display back cover.

- a. Place the monitor on a soft cloth or cushion.
- b. Remove 22 screws (M3x4).
- c. Remove 4 rubbers plugs.
- d. Use a rework jip to insert the hole on the bottom side.
- e. Loose the back cover with Jip as indicated by arrow.
- f. Pull up the display back cover to by band.





Remove the display back cover.

- a. Disconnect joystick cable from main board.
- b. Remove the display back from panel.



Remove joystick board from the back cover.

- a. Remove 2 screws (M3x5).
- b. Peel all tape on the key cable.



Remove all tapes and cable clips.

- a. Remove 3 strips of conductive tape.
- b. Remove 9 strips of white tape.
- c. Remove 6 cable clips.







Remove two speakers and all cables.

- a. Remove 4 screws (M4x10) on two speakers.
- b. Peel 3 rubber plugs.
- c. Disconnect and remove all cables.





Disconnect IR cable and LED cable from PCBA.

- a. Peel the tape of LED cable.
- b. Open the latch and pull out IR cable.
- c. Open the latch and pull LED cable.







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Remove AC outlet.

a. Remove one screw (M3x6) to loose AC outlet.

- b. Remove one grounding screw (M4x8).
- c. Pull out all the cables.



Remove the driver board and power board.

- a. Remove 4 screws (M3x6) on the driver board.
- b. Remove 6 screws (M3x6) on the power board.





Remove USB board and I/O cover.

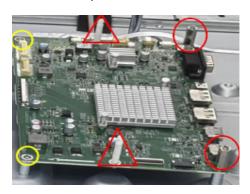
- a. Remove 2 Hex screws (M3x8) on VGA connector.
- b. Remove 2 screws (M3x6) on the USB board.
- c. Remove the I/O cover and USB board.





Remove main board.

- a. Remove 2 screws (M3x6) on the main board.
- b. Remove two Hex socket standoffs (M3x6).
- c. Remove two plastic shelf on the main board.



Remove T-con board.

- a. Remove 2 screws (M3x4) on the T-con board.
- b. Open the latch and disconnect the two FFC cable.



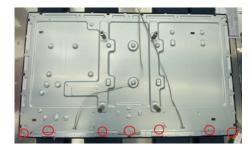


Loose the bottom side of the front cover. a. Remove10 screws (M3x5).



Remove the shielding cover.

- a. Remove 7 screws (M3x4).
- b. Remove two shielding covers from bottom side.



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Loose PCBA of O/C module.

a. Peel the PCBA away from back bracket.





Remove the front cover.

- a. Remove 4 screws (M3x4) on the top side.
- S15 b. Remove 3 screws (M3x4) on the left side.
 - c. Remove 3 screws (M3x4) ton the right side.
 - d. Pull up the front cover by band to loose it.





Remove the LED board and IR board from front cover.

- a. Remove the LED board from the lower left corner of the front cover.
- b. Remove the IR board from the bottom side of the front cover.





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Remove the OC module.

Take out the OC module from the middle frame by sucking tool.



Remove the middle frame.

- a. Pull up the middle frame by band to loose it from the back bracket.
- b. Lift up the middle frame.



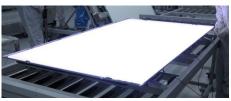
S19

S18

Remove the Diffuser and Prismatic lens.

- a. Remove the Prismatic lens from Diffuser.
- b. Remove the Diffuser from LGP.





S20

Remove LGP.

a. Remove LGP with a sucking tool.



S21

Remove the reflector film.

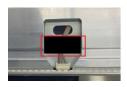
a. Remove a reflector film from the back bracket.





Remove the light bar.

- a. Peel the tape.
- b. Disconnect two Light bar cables.
- c. Peel the two light bar away from the heat sink.









Remove the heat sink.

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- a. Remove 14 screws (M3x4) on heat sink.
- b. Remove the heat sink away from the back bracket.



5.2 Assembly Procedures:

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Prepare light bar:

a. Take 2 light bar and double-faced tape.

b. Paste double-faced tape on the back of the light bar.



Prepare back bracket.

- a. Put a back bracket on the working table.
- b. Paste 1pcs label on the specific position.



Assemble heat sink with back bracket.

- a. Turn over the back bracket.
- b. Put the heat sink on the back bracket.
- c. Lock 14 screws (M3x4) to secure the L/B heat sink with the back bracket.



Assemble the light bar with hear-sink.

- a. Peel the tape paper on the two L/B.
- b. Paste 2 L/B from left to right.
- c. Laminate L/B with heat sink together.
- e. Connect two L/B cables to connectors.
- f. Fix the cable on the back bract with tapes.











Assemble reflector film with the back bracket.

a. Put a reflector film into the back bracket.

b. Make sure the gap between light and Reflector



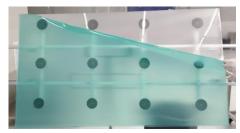
Assemble LGP with reflector film.

- a. Use a sucking tool to suck 1pcs LGP.
- b. Peel the back protective film of the LGP.
- c. Assemble the LGP with the reflector.
- d. Power on to check the film.

S6

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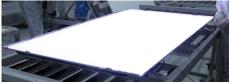




Assemble Diffuser and Prismatic lens with LGP.

- a. Peel the front film of the LGP.
- b. Place 1 Diffuser on LGP.
- c. Place 1 Prismatic lens on Diffuser.







Assemble middle frame.

S8

- a. Assemble middle frame with bracket.
- b. Check whether all the clasps snap into place.
- c. Provide power to light bar for testing.



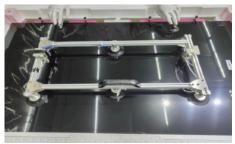




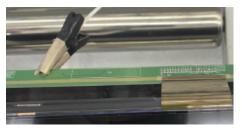


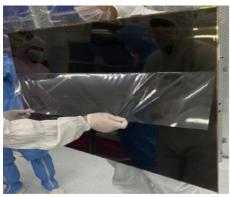
Prepare O/C module.

- a. Place O/C module on a protective cushion.
- b. Supply power to the O/C module for checking.
- c. Use Electrostatic clips to clamp the copper part of the PCBA. $\label{eq:copper} % \begin{center} \begin{c$
- d. Peel the protective film of O/C with masking tape.









Assemble O/C module with the middle frame.

a. Put O/C module into middle frame with sucking tool.
b. Make sure two parts firmly attachment.



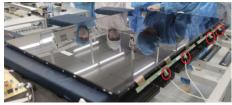


Peel protective film of OC module.

S11

a. Use Electrostatic clips to clamp the copper part of the PCBA.

b. Peel the film of OC module with masking tape.



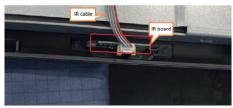


S15

Assemble LED board and IR board with front cover.

- a. Assemble one LED board to the lower left corner of the front cover.
- b. Assemble one IR board to the bottom side of the front cover.





Assemble front cover.

- \$13 a. Assembled the front cover with middle frame.
 - b. Push the front cover for two parts firmly attached.







Lock the front cover.

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- a. Lock 4 screws (M3x4) to secure the top side.
- b. Lock 3 screws (M3x4) to secure left side.
- c. Lock 3 screws (M3x4) to secure right side.



Assemble PCBA of O/C module.

- a. Fix the PCBA of the O/C with masking tape.
- b. Turn over the back bracket to back side.
- c. Peel the release paper of the tape.
- d. Paste the PCBA on the back bracket.





Assemble shielding cover.

a. Assemble two shielding covers to the bottom side. b. Lock 7 screws (M3x4) to secure the shielding covers and PCBA.



Secure bottom side of the front cover.

a. Lock 10pcs screws (M3x5) to secure the front cover with panel and middle frame.



Assemble T-con board.

s 18 a. Lock 2 screws (M3x4).

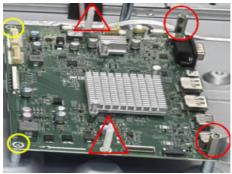
b. Connect T-con board to PCBA of O/C module with FFC cable.



Assemble main board.

- a. Lock 2 screws (M3x6).
- b. Lock two Hex socket standoffs (M3x6).
- b. Assemble two plastic shelf to the main board.





Assemble USB board and I/O cover.

- a. Lock 2 screws (M3x6) to secure the USB board.
- b. Assemble one I/O cover to the board.
- c. Lock 2 Hex screws (M3x8) to secure VGA connector.





Assemble driver board and power board.

a. Lock 4 screws (M3x6) to secure the driver board. b.

Lock 6 screws (M3x6) to secure the power board.







Assemble AC outlet.

- a. Plug wires to the AC outlet.
 - a. Lock one screw (M3x6) to secure the AC outlet.
 - b. Lock 1 screw (M4x8) to secure the grounding wire.

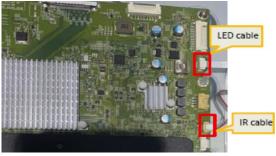




Connect IR cable and LED cable to PCBA.

- a. Peel the tape paper of LED cable.
 - b. Paste the LED cable on the back bracket.
 - c. Connect LED cable and IR cable to the main board.





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Assemble two speakers and Connect all cables.

- a. Lock 4 screws (M4x10) to secure two speakers.
- b. Paste 3 rubber plugs on the specific position.
- c. Connect all the boards with cables.





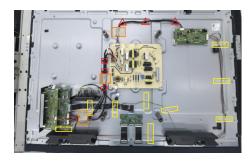


S24

S25

Fix cables with cable clips and tape.

- a. Paste 6 cable clips to fix the wires.
- b. Paste 9 strips of white tape.
- c. Paste 3 strips of conductive tape.







Assemble joystick board with back cover.

- a. Assemble a joystick cap to the joystick board.
- b. Connect a cable to the joystick board.
- c. Assemble the joystick board to the back cover.
- d. Lock 2 screws (M3x5).
- e. Paste the key cable on the cover with tape.

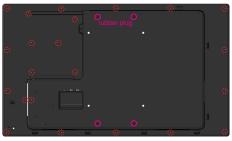




Assemble back cover to the display monitor.

- a. Connect the joystick cable to the main PCBA.
- b. Put down the back cover.
- c. Lock 22 screws (M3x4) to secure the back cover.
- d. Plug 4 rubber plugs to the back cover.
- e. Paste label on the back cover.
- f. Insert USB and DP caps to the connectors







S27

Use a clean cloth to wipe the screen of the monitor, then provide power and signals to the monitor, and check the monitor following the inspection spec.



Troubleshooting

MARNING: Before you begin any of the procedures in this section, follow the Safety instructions.

Self-Test

Your display provides a self-test feature that allows you to check whether your display is functioning properly. If your display and computer are properly connected but the display screen remains dark, run the display self-test by performing the following steps:

- 1. Turn off both your computer and the display.
- 2. Unplug the video cable from the back of the computer. To ensure proper Self-Test operation, remove all digital and the analog cables from the back of computer.
- **3.** Turn on the display.

The floating dialog box should appear on-screen (against a black background), if the display cannot sense a video signal and is working correctly. While in self-test mode, the power LED remains white. Also, depending upon the selected input, one of the dialogs shown below will continuously scroll through the screen.



Figure 12. USB-C cable disconnected warning message



Figure 13. DP cable disconnected warning message

No HDMI 1 Cable
The display will go into Standby mode in 4 minutes.
www.dell.com/support/P5525QC

Figure 14 HDMI 1 cable disconnected warning message

No HDMI 2 Cable The display will go into Standby mode in 4 minutes. www.dell.com/support/P5525QC

Figure 15 HDMI 2 cable disconnected warning message

- 4. This box also appears during normal system operation, if the video cable becomes disconnected or damaged.
- 5. Turn off your display and reconnect the video cable; then turn on both your computer and the display.

If your display screen remains blank after you use the previous procedure, check your video controller and computer, because your display is functioning properly.

Built-in diagnostics

Your monitor has a built-in diagnostic tool that helps you determine if the screen abnormality you are experiencing is an inherent problem with your monitor, or with your computer and graphics card.

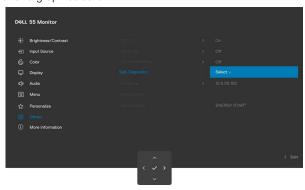


Figure 16. Self-Diagnostic

To run the built-in diagnostics:

- **1.** Ensure that the screen is clean (no dust particles on the surface of the screen).
- 2. Select OSD items of Self-Diagnostic in Others feature.
- **3.** Press the Joystick button to start the diagnostics. A gray screen is displayed.
- 4. Observe if the screen has any defects or abnormalities.
- **5.** Toggle the joystick once again until a red screen is displayed.
- **6.** Observe if the screen has any defects or abnormalities.
- 7. Repeat steps 5 and 6 until the screen displays green, blue, black, and white colors. Note any abnormalities or defects.

The test is complete when a text screen is displayed. To exit, toggle the joystick control again.

If you do not detect any screen abnormalities upon using the built-in diagnostic tool, the monitor is functioning properly. Check the graphics card and computer.

The following table contains general information about common monitor problems you might encounter and the possible solutions:

WARNING: The monitor LCD panel duty cycle is designed for 18 hours a day, 7days a week. Usage higher than the designed duty cycle may result in premature decrease in panel backlight luminance, which may not be covered under warranty.

Table 2. Common problems

Common symptoms	What you experience	Possible solutions
No Video/Power LED off	No picture	Ensure that the video cable connecting the display and the computer is properly connected and secure.
		Verify that the power outlet is functioning properly using any other electrical equipment.
		Ensure that the power button is on.
		Ensure that the power buttoms on: Ensure that the correct input source is selected in the Input Source menu.
No Video/Power LED on	No picture or po	Increase brightness and contrast controls through OSD.
No video/1 ower LLD off	No picture or no brightness	Perform monitor self-test feature check.
		Check for bent or broken pins in the video cable connector.
		Run the built-in diagnostics.
		Ensure that the correct input source is selected in the Input Source menu.
Poor Focus	Picture is fuzzy, blurry, or	Eliminate video extension cables.
1 001 1 0003	ghosting	Reset the display to factory settings.
	3 - 3	Change the video resolution to the correct aspect ratio.
Shaky/Jittery Video	Wavy picture or fine	Reset the display to factory settings.
Shaky/Sittery video	movement	Check environmental factors.
Missing Pixels	LCD screen has spots	Relocate the display and test in another room.Cycle power on-off.
ivilissifig i ixels	LOD screennas spors	Pixel that is permanently off is a natural defect that can occur in LCD
		 technology. For more information about Dell Display Quality and Pixel Policy, see Dell Display Pixel Guidelines.
Stuck-on pixels	LCD screen has bright	Cycle power on-off.
	spots	Pixel that is permanently off is a natural defect that can occur in LCD technology.
		 For more information about Dell Monitor Quality and Pixel Policy, see Dell Display Pixel Guidelines.
Brightness problems	Picture too dim or too	Reset the monitor to factory settings.
	bright	Adjust brightness and contrast controls through OSD.
Audio problem	No Audio	Check PC setting if the playback is correctly selected.
•		Checking other video cables.
		Ensure that the speaker is enabled via OSD.
Geometric Distortion	Screen not centered correctly	Reset the display to factory settings.
Synchronization	Screen is scrambled or appears torn	Reset the display to factory settings.
Problems		Perform display self-test feature check to determine if the scrambled screen appears in self-test mode.
		Check for bent or broken pins in the video cable connector.
		Restart the computer in safe mode.
Safety Related Issues	Visible signs of smoke or	Do not perform any troubleshooting steps.
	sparks	Contact Dell immediately.
Intermittent Problems	Display malfunctions on and off	Ensure that the video cable connecting the display to the computer is connected properly and is secure.
	and on	Reset the display to factory settings.
		Perform display self-test feature check to determine if the intermittent problem
		occurs in self-test mode.

Common symptoms	What you experience	Possible solutions
Missing Color	Picture missing color	Perform display self-test.
		Ensure that the video cable connecting the display to the computer is connected properly and is secure.
		Check for bent or broken pins in the video cable connector.
Wrong Color	Picture color not good	Change the settings of the Preset Modes in the Color menu OSD depending on the application.
		Adjust R/G/B value under Custom. Color in Color menu OSD.
		Change the Input Color Format to PC RGB or YCbCr in the Color menu OSD.
		Run the built-in diagnostics.
Image retention from a static image left on the	Faint shadow from the static image displayed	Set the screen to turn off after a few minutes of screen idle time. These can be adjusted in Windows Power Options or Mac Energy Saver setting.
display for a long period of time	appears on the screen	Alternatively, use a dynamically changing screensaver.

Product-specific problems Table 3. Product-specific problems

Specific symptoms	What you experience	Possible solutions
The screen image is too	Image is centered on screen, but does not fill entire viewing area	Check the Aspect Ratio setting in the Display menu OSD.
small		Reset the display to factory settings.
Cannot adjust the monitor with the joystick	OSD does not appear on the screen	Turn off the monitor, unplug the monitor power cable, plug it back, and then turn on the monitor.
		Check if the OSD menu is locked. If yes, move and hold the joystick up/down/left/right for 4 seconds to unlock.
No Input Signal when user controls are pressed	No picture, the LED light is white	Check the signal source. Ensure the computer is not in the power saving mode by moving the mouse or pressing any key on the keyboard.
		Check whether the signal cable is plugged in properly. Re-plug the signal cable if necessary.
		Reset the computer or video player.
The picture does not fill the entire screen	The picture cannot fill the height or width of	Due to different video formats (aspect ratio) of DVDs, the display may display in full screen.
	the screen	Run the built-in diagnostics.
No image when using USB Type-C connection	Black screen	Verify if the USB Type-C interface of the device can support DP alternate mode.
to computer, laptop, and		Verify if the device required more than 90 W power charging.
so on		USB Type-C interface of device cannot support DP alternate mode.
		Set Windows to Projection mode.
		Ensure that the USB Type-C cable is not damaged.
No charging when using	No charging	• Verify if the device can support one of 5 V/9 V/15 V/20 V charging profiles.
USB Type-C connection		Verify if the Notebook requires a >90W power adapter.
to computer, laptop, and so on		• If the Notebook requires a >90W power adapter, it may not charge with the USB Type-C connection.
		Ensure that you use only the Dell approved adapter or the adapter that comes with the product.
		Ensure that the USB Type-C cable is not damaged.
Intermittent charging	Intermittent charging	Check if the maximum power consumption of device is over 90 W.
when using USB Type-C connection to computer,		Ensure that you use only Dell approved adapter or the adapter that comes with the product.
laptop, and so on		Ensure that the USB Type-C cable is not damaged.

 Table 4.
 Universal Serial Bus (USB) specific problems

Specific symptoms	What you experience	Possible solutions
USB interface is not	USB peripherals are not	Check that your display is turned ON.
working	working	Reconnect the upstream cable to your computer.
		Reconnect the USB peripherals (downstream connector).
		Switch off and then turn on the display again.
		Reboot the computer.
		Some USB devices like external portable HDD require higher electric current; connect the device directly to the computer system.
SuperSpeed USB 3.2	SuperSpeed USB 3.2 peripherals working slowly or not working at all	Check that your computer is USB 3.2-capable.
interface is slow		Some computers have USB 3.1, USB 3.0, USB 2.0, and USB 1.1 ports. Ensure that the correct USB port is used.
		Reconnect the upstream cable to your computer.
		Reconnect the USB peripherals (downstream connector).
		Reboot the computer.
Wireless USB peripherals stop working when	als Wireless USB peripherals responding slowly or only	Increase the distance between the USB 3.2 peripherals and the wireless USB receiver.
a USB 3.2 device is plugged in	working as the distance between itself and its	Position your wireless USB receiver as close as possible to the wireless USB peripherals.
	receiver decreases	• Use a USB-extender cable to position the wireless USB receiver as far away as possible from the USB 3.2 port.
USB is not working	No USB functionalities	See the input source and USB pairing table.

Ethernet problems

Table 5.Ethernet problems

Specific symptoms	What you experience	Possible solutions
Ethernet not working	Dell Web Management for Displays Webpage control is not working	 Ensure that the Network cable connecting the display is properly secured. Press the joystick button for 3 seconds to turn on. A network icon appears and is shown on the center for 3 seconds.
		• Press the joystick button for 3 seconds to turn off. A network icon appears and is shown on the center for 3 seconds.