Service Manual - U2723QE/U3023E/U3223QE

Version: 01

Date: 2021/11/30

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





Item	Description	Q'ty	Remark
1	Panel	1	
2	ASSY Middle Frame	1	
3	PCBA USB BD	1	
4	PCBA Power BD	1	For EMEA Only, not for
5	PCBA Interface BD	1	other regions
6	ASSY Main Chassis	1	
7	ASSY Rear Cover	1	
8	ASSY Stand Base	1	
9	Power cable	1	See "NOTE"
10	DisplayPort 1.8 M cable	1	See "NOTE"
11	USB-C Gen2 PD3.0 cable (U3023E only)	1	See "NOTE"
12	USB-C Gen2 1.0 M cable (A to C) (U3023E only)	1	See "NOTE"
13	USB-C 1.0 M cable (A to C) (U2723QE/U3223QE only)	1	See "NOTE"
14	USB-C 1.0 M cable (C to C) (U2723QE/U3223QE only)	1	See "NOTE"

NOTE:

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

1. Go to https://www.dell.com/support.

- 2. Verify your country or region in the Choose A Country/Region drop-down menu at the bottom-right corner of the page.
- 3. Click Contact Us next to the country dropdown.
- 4. Select the appropriate service or support link based on your need.
- 5. Choose the method of contacting Dell that is convenient for you.

3. Wiring Connectivity Diagram

U2723QE&U3223QE



U3023E



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.



Connecting the HDMI Cable (optional)



Connecting the DP Cable





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

Connecting the USB-C Cable (A to C)



Connecting the USB-C Cable (C to C)





Connecting the Monitor for USB-C Multi-Stream Transport (MST) Function

Connecting the Monitor for RJ45 Cable (optional)



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

S1

- Soldering iron and absorber
- 4.1 Disassembly Procedures(U3223QE for example):

Remove the monitor stand base:

- 1. Place the monitor on a soft cloth or cushion.
- 2. Press and hold the stand-release button.

3. Lift the stand up and away from the monitor.



S2

Use a Philips-head screwdriver to remove 4pcs screws for unlocking mechanisms. Remove DP caps. (No.1~4 screw size=M4x11; Torque=11±1kgfxcm)



S3

middle bezel on the corners of the top side of the monitor to release the rear cover, then use one hand to press the middle bezel, the other hand to pull up carefully the rear cover in order of arrow preference for unlocking mechanisms of rear cover.

Wedge your fingers between rear cover and the



S4

Lift the rear cover up carefully. Disconnect the joystick key cable from the connector of the interface board, and then remove the rear cover and put it aside for later disassembling.



Use a Philips-head screwdriver to remove 2pcs screw for unlocking the key board, then tear off the tapes and release the key board.

2 screw size=M2x2.4, Torque=0.8~1kgfxcm)



S6

S5

Tear off 1pcs aluminum foil for unfixing the bracket, then tear off 1pcs acetate tape for uncovering the LVDS connector.



Use a Philips-head screwdriver to release one screw for unlocking the USB board, and disconnect the two cables, then release the USB board from the hooks

S7

of the middle bezel.

(No.1screw size=M3x6, Torque=4±0.5kgfxcm)



Use a Philips-head screwdriver to remove 18(13+5)pcs screws for unlocking the middle bezel

(No.1~13 screw size=M3x5, Torque=5±0.5kgfxcm; No.13~18 screw size=M3x4.5, Torque=5±0.5kgfxcm)



S9

S10

S8

Disconnect the two panel lamp cables from the connectors of the panel. Disconnect the LED cable from the connector of the interface board.





Use a Philips-head screwdriver to remove 4pcs screws for unlocking the bracket chassis module with the panel.

(No.1~4 Screw size= M3x5, Torque=5±0.5kgfxcm)



S11

Lift up the middle bezel, and then put it on a cushion foam for later disassembling.



Tear off the tape on the middle bezel for releasing the S12 LED cable, and then tear off the mylar tape to release the LED board for the hooks of the middle bezel.









Move up the bracket, then push the earing-lock and disconnect the LVDS cable away from the connectors of the panel module.



with the panel module.



Take away the bracket chassis module and then put the bracket chassis module on a protective cushion.



S15 Release the panel lamp cables from the hooks of the bracket, then remove the Mylar tape from the hooks of the bracket.





Use a Philips-head screwdriver to remove 8pcs screws for interface board and power board. (No.1 screw size=M4x8, Torque=7±1kgfxcm; No.2~8 screw size=M3x7.5, Torque=7±1kgfxcm)





Remove the power board board and interface board from the bracket chassis module carefully, and then disconnect all of the cables.





5.1 Assembly Procedures:

Place a bracket chassis base on a protective

S1 cushion, then stick 4pcs Silicon sheets on the positions as the picture below shown.



S2

Take a power board and put the power board into the bracket chassis, settle the cable to the correct position.



Take a interface board, connect 1pcs LVDS cable and 1pcs panel lamp cable to the connectors of the interface board, then connect the cable of the power board with interface board. Turn over the interface board and locate it to the bracket. Use a Philips-head screwdriver to tighten 7pcs screws for locking the interface board and power board.

(No.1 screw size=M4x8, Torque=7.5±0.5kgfxcm; No.2~7 screw size=M4x8, Torque=7.5±0.5kgfxcm)





S4

S5

Take a black mylar to insert the hooks of the bracket to cover the power board, then tear off the gum paper of the panel lamp cable and locate the cable into the hook of the bracket..



Panel preparation: Take out 1pcs panel module from the carton, remove the protective film by tearing off the tapes, then examine the panel surface according to inspection criteria of the panel. Turn over the panel module to place the screen faced down for later assembling.



S6

Move the bracket chassis module close to the panel module, then connect the LVDS cable to the connector of the panel module, then turn over the bracket chassis and put it on the back of the bracket chassis module.



S3



Adjust the bracket chassis module, and then use a Philips-head screwdriver to tighten 4pcs screws for locking the bracket chassis module with the panel. (No.1~4 Screw size= M3x5, Torque=5±0.5kgfxcm)



Take 1pcs LED key board and 1pcs middle bezel, then put the middle bezel into a fixture jip to fix the middle bezel. Tear off the gum on the back of the board, and then paste the LED board on the correct position of the middle bezel, then paste 1pcs mylar tape to cover the LED board as the picture below shown.







S9

Move the middle bezel with the LED board close to the panel unit, then assemble the middle bezel with the front bezel and panel module.



S10

Tear off the release paper of the adhesive tape on the back of the LED cable, then settle and fix the LED cable on the back of the panel module.





Connect the panel lamp cable to the connector of the panel module. Connect the LED cable to the connector of the interface board.



S12

Use a Philips-head screwdriver to tighten 13pcs screws for locking the middle bezel with the panel module.

(No.1~13 screw size=M3x5, Torque=5±0.5kgfxcm)



S8

S7

Take 1pcs USB board, 2pcs cables and 1pcs conductive foam. Connect the 2pcs cables to the connectors of the Usb board, then turn over the board and paste the conductive foam on the back of the USB board, and then locate the USB board into

S13 the correct position of the middle bezel. Use a Philips-head screwdriver to tighten 1pcs screw for locking the USB unit with the middle bezel, then connect the two USB cables to the connectors of interface board.

(No.1 screw size=M3x6, Torque=4±0.5kgfxcm)







S14

Paste 1pcs aluminum foil to fix the bracket on the specific position as the picture below shown.



Take 1pcs joystick key and 1pcs OSD board, assemble the joystick key with the OSD board. Locate the board to the correct position of the rear cover, then use a Philips-head screwdriver to tighten 2pcs screws for locking the board with rear cover.

S15

Tear off the tape papers on the back of the cable, and then fix the key cable with tapes.

(No.1~2 screw size=M2x2.4, Torque=0.9±0.1kgfxcm)





S16

Move the assembled rear cover close to the panel unit, then connect the joystick key cable to the connector of interface board. Put down the rear cover and push the rear cover on the positions marked as the picture below shown for mechanisms engagement.





S17 Use a Philips-head screwdriver to tighten 4pcs screws for locking the rear cover with the unit. Stick two pieces of label on the specific positions, then insert 2pcs DP out Caps into the DP out connectors. (No.1~4 screw size=M4x11; Torque=11±1kgfxcm)





Take a stand base close to the monitor. Fit the two tabs on the upper part of the stand into the grooves, and then lower the stand so that the monitor mounting area snaps onto the stand.





Lift up the monitor to check the gap between the front bezel and the panel, then provide power supply and a video signal to the monitor, then turn on the monitor for functionality check.



Self-Test

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

- **1.** Turn off both your computer and the monitor.
- **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 monitor.

The floating dialog box should appear on-screen (against a black background), if the monitor 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.



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

If your monitor screen remains blank after you use the previous procedure, check your video controller and computer, because your monitor 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 video card.

_	094U	UltraSharp 30/27/32 Monitor		
		Brightness/Contrast		
		Input Source		
		Color		
	ç	Display		
		PIP/PBP		
		USB		
		Menu		
		Personalize		
				V EAIL

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-Diagnostics 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 video card and computer.

Common problems

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

Common symptoms	What you experience	Possible solutions
No Video/ Power LED off	No picture	 Ensure that the video cable connecting the monitor 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 depressed fully. Ensure that the correct input source is selected in the Input Source menu.
No Video/ Power LED on	No picture or no brightness	 Increase brightness and contrast controls via OSD. 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.
Missing Pixels	LCD screen has spots	 Cycle power on-off. Pixel that is permanently off is a natural defect that can occur in LCD technology. For more information on Dell Monitor Quality and Pixel Policy, see Dell Support site at: https://www.dell.com/pixelguidelines.
Stuck-on Pixels	LCD screen has bright spots	 Cycle power On-Off. Pixel that is permanently off is a natural defect that can occur in LCD technology. For more information on Dell Monitor Quality and PixelPolicy, see Dell Support site at: https://www.dell.com/pixelguidelines.
Brightness Problems	Picture too dim or too bright	 Reset the monitor to factory settings. Adjust brightness and contrast controls via OSD.
Safety Related Issues	Visible signs of smoke or sparks	 Do not perform any troubleshooting steps. Contact Dell immediately.

Common symptoms	What you experience	Possible solutions
Intermittent Problems	Monitor malfunctions on & off	 Ensure that the video cable connecting the monitor to the computer is connected properly and is secure. Reset the monitor to factory settings. Perform monitor self-test feature check to determine if the intermittent problem occurs in self-test mode.
Missing Color	Picture missing color	 Perform monitor self-test. Ensure that the video cable connecting the monitor 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	 Try different Preset Modes in Color settings OSD. Adjust R/G/B value under Custom Color in Color menu OSD. Change the Input Color Format to RGB or YCbCr in the Color settings OSD. Run the built-in diagnostics.
Image retention from a static image left on the monitor for a long period of time	Faint shadow from the static image displayed appears on the screen	 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. Alternatively, use a dynamically changing screensaver.

Product specific problems

Problem	What you experience	Possible solutions
Screen image is too small	Image is centered on screen, but does not fill entire viewing area	 Check the Aspect Ratio setting in the Display menu OSD. Reset the monitor to factory settings.
Cannot adjust the monitor with the buttons on the front panel	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.
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. Connect the signal cable again, 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 the screen	 Due to different video formats (aspect ratio) of DVDs, the monitor may display in full screen. Run the built-in diagnostics.
No image when using DP connection to the PC	Black screen	 Verify which DP standard (DP 1.1a or DP 1.4) is your Graphics Card certified to. Download and install the latest graphics card driver. Some DP 1.1a graphics card cannot support DP 1.4 monitors. Go to OSD menu, under Input Source selection, press and hold DP select joystick key for 8 seconds to change the monitor setting from DP 1.4 to DP 1.1a.

Problem	What you experience	Possible solutions
No image when using USB-C connection to computer, laptop, and so on	Black screen	 Verify if the USB-C interface of the device can support DP alternate mode. Verify if the device required more than 90 W power charging. USB-C interface of device cannot support DP alternate mode. Set Windows to Projection mode. Ensure that the USB-C cable is not damaged.
No charging when using USB-C connection to computer, laptop, and so on	No charging	 Verify if the device can support one of 5 V/9 V/ 15 V/20 V charging profiles. Verify if the Notebook requires a >90 W power adaptor. If the Notebook requires a >90 W power adaptor, it may not charge with the USB-C connection. Ensure that you use only Dell approved adapter or the adapter that comes with the product. Ensure that the USB-C cable is not damaged.
Intermittent charging when using USB-C connection to computer, laptop, and so on	Intermittent charging	 Check if the maximum power consumption of device is over 90 W. Ensure that you use only Dell approved adapter or the adapter that comes with the product. Ensure that the USB-C cable is not damaged.
No image when using USB-C MST	Black screen or 2 nd DUT is not Prime mode	• USB-C input, Go to OSD menu, under Display Info check the Link Rate is HBR2 or HBR3, if Link Rate is HBR2, suggest to use USB-C to DP cable to turn on MST.
No network connection	Network dropped or Intermittent	 Do not toggle Off/On the power button when network is connected, keeps the power button On.

Problem	What you experience	Possible solutions
The LAN port is not functioning	OS setting or cable connection issue	 Ensure that the latest BIOS and drivers for your computer are installed on your computer. Ensure that the RealTek Gigabit Ethernet Controller is installed in the Windows Device Manager. If your BIOS Setup has a LAN/GBE Enabled/Disabled option, make sure it is set to Enabled. Ensure that the Ethernet cable is connected securely on the monitor and the hub/router/firewall. Check the status LED of the Ethernet cable to confirm connectivity. Re-connect both ends of the Ethernet cable if the LED is not lit. First power off the Computer and unplug the Type-C cable and power cord of the monitor. Then, power on the computer, plug in the monitor power cord and Type-C cable.
U3023E cannot set to 2560 x 1600 @ 60Hz in Daisy chain mode in DP1.2 (DSC Disable)	2 nd monitor displayed image cannot set at 2560 x 1600 @ 60Hz when set MST On and USB-C Prioritization (High Data Speed)	 Switch USB-C Prioritization from High Data Speed to High Resolution. (USB speed reduce to 2.0) Switch PC that supported DP1.4
U3023E connected as 3 rd monitor cannot set to 2560 x 1600 @ 60Hz in Daisy chain mode in DP1.4 (DSC Disable)	3 rd monitor displayed image cannot set at 2560 x 1600 @ 60Hz when set MST On and USB-C Prioritization (High Data Speed)	• Switch USB-C Prioritization from High Data Speed to High Resolution. (USB speed reduce to 2.0)

Problem	What you experience	Possible solutions
U3023E connected as 3 rd monitors displayed image at lower resolution in DP1.4 (DSC Enable)	Three U3023E monitors connected in daisy chain, 3 rd displayed image at lower resolution when set MST On and USB-C Prioritization (High Data Speed)	 Press "Windows" + "P" key, select "second screen only" Goto Display setting, select 2560 x 1600
2 nd monitor (U3023E) no displayed image when 1 st monitor (non-DSC) connected to Discrete Graphic Card (E.g Nvidia) with DSC Enable	Two monitors connected in Daisy chain, 2 nd monitor U3023E no displayed image when set MST On and USB-C Prioritization (High Data Speed)	• Connect U3023E as 1 st Monitor
U3023E as 2 nd monitor cannot display 2560 x 1600 image when 1 st monitor (non-DSC) connected to Intel Graphic Card with DP1.4 (DSC Enable)	Two monitors connected in Daisy chain, 2 nd monitor U3023E cannot displayed 2560 x 1600 image when set MST On and USB-C Prioritization (High Data Speed)	• Connect U3023E as 1st Monitor

Problem	What you experience	Possible solutions
OSD lagging when navigating menu	2 or 3 monitors connected in daisy chain when MMS is On, OSD lagging during menu navigation	 Set Multi-Monitor Sync (MMS) turn off Or Slow the OSD navigating speed to 1 second
OSD no response	2 or 3 monitors connected in daisy chain when MMS is On, no OSD response during menu navigation response during menu navigation	• Set Multi-Monitor Sync (MMS) turn off
Can't adjust Brightness/ Contrast through Dell Display Manager (DDM)	2 or 3 monitors connected in daisy chain when MMS is On, some functions of the 2 nd or 3 rd monitors may not work on DDM	 Set Multi-Monitor Sync (MMS) turn off Or adjust Brightness/contrast through OSD
U3023E as 2 nd monitor no displayed image when 1 st monitor with USB-C cable connected to Nvidia Graphic Card (DSC Enable) with Salomon docking	Two monitors connected in Daisy chain, 2 nd monitor U3023E no displayed image when set MST On and USB-C Prioritization (High Data Speed)	 In the BIOS menu set to disable" discrete graphics controller direct output mode" Without docking

Problem	What you experience	Possible solutions
U3023E connected as 2 nd monitor cannot set to 2560 x 1600 @ 60Hz in Daisy chain mode in DP1.4 (DSC Disable)	Two monitors connected in Daisy chain, 1 st monitor(non- DSC) and 2 nd monitor U3023E cannot set to 2560 x 1600 @ 60Hz when set MST On and USB-C Prioritization (High Resolution)	• Connect U3023E as 1 st Monitor
3x U3023E connected in MST mode encountered flicker issue	3x U3023E connected in MST mode encountered flicker issue for 1 second during Shutdown, Reboot, Unplug/plug, Sleep & Wakeup	• Intel Graphic card driver limitation
1 st monitor (Non DSC) connected 2 nd monitor U3023E (DSC) cannot reach native resolution for 2 nd monitor	1 st monitor (Non DSC) connected 2 nd monitor U3023E (DSC) cannot reach native resolution for 2 nd monitor	 Intel Graphic card driver limitation Connect U3023E as 1st Monitor
Ethernet not working	Ethernet not connected	• Install Ethernet Driver 10.45.20.

Problem	What you experience	Possible solutions
3 Soundbar unit not working when connected to 3 U3023E monitor	3 soundbars unit connected individually to 3 U3023E monitor, soundbar not working via DP/ HDMI	 USB Topology limitation to 2. Connect 2 soundbar unit individually to 2 U3023E monitor
3x U3023E connected in MST mode DSC disable and High Data Speed encountered hang five minutes issue	Three monitors connected in Daisy chain, 1 st monitor connect USB-C cable with platform and 2 nd and 3 rd monitor with DP cable when set MST On and USB-C Prioritization (High Data Speed) and DSC Disable Restart platform or unplug and plug USB-C cable encounter hang five minutes issue	 Connect 2 U3023E monitor at DSC disable and USB-C Prioritization switch to High Data Speed, Or Connect 3 U3023E monitor at DSC disable and USB-C Prioritization switch to High Resolution

Universal Serial Bus (USB) specific problems

Specific symptoms	What you experience	Possible solutions
USB interface is not working	USB peripherals are not working	 Check that your display is turned ON. Reconnect the upstream cable to your computer. Reconnect the USB peripherals (downstream connector). Turn off the monitor and turn it on again. Reboot the computer. Certain USB devices such as portable hard drives require higher power source; connect the drive to the computer directly.
Super speed USB 3.2 Gen2 interface is slow.	Super speed USB 3.2 Gen2 peripherals working slowly or not working at all	 Check that your computer is USB 3.0-capable. Some computers have 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 a USB 3.0 device is plugged in	Wireless USB peripherals responding slowly or only working as the distance between itself and its receiver decreases	 Increase the distance between the USB 3.0 peripherals and the wireless USB receiver. Position your wireless USB receiver as close as possible to the wireless USB peripherals. Use a USB-extender cable to position the wireless USB receiver as far away as possible from the USB 3.0 port.
USB is not working	No USB functionalities	Refer to input source and USB pairing table.