Maintenance and Service Guide

SUMMARY

This guide provides information about spare parts, removal and replacement of parts, security, backing up, and more.

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Product notice

This guide describes features that are common to most models. Some features may not be available on your computer.

Not all features are available in all editions or versions of Windows. Systems may require upgraded and/or separately purchased hardware, drivers, software or BIOS update to take full advantage of Windows functionality. Windows 10 is automatically updated, which is always enabled. ISP fees may apply and additional requirements may apply over time for updates. Go to http://www.microsoft.com for details.

To access the latest user guides, go to http://www.hp.com/support, and follow the instructions to find your product. Then select **Manuals**.

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For any further information or to request a full refund of the price of the computer, please contact your seller.

Not all features are available in all editions of Windows. This computer may require upgraded and/or separately purchased hardware, drivers and/or software to take full advantage of Windows functionality. Go to http://www.microsoft.com for details.

Safety warning notice

Reduce the possibility of heat-related injuries or of overheating the computer by following the practices described.

⚠ **WARNING!** To reduce the possibility of heat-related injuries or of overheating the computer, do not place the computer directly on your lap or obstruct the computer air vents. Use the computer only on a hard, flat surface. Do not allow another hard surface, such as an adjoining optional printer, or a soft surface, such as pillows or rugs or clothing, to block airflow. Also, do not allow the AC adapter to come into contact with the skin or a soft surface, such as pillows or rugs or clothing, during operation. The computer and the AC adapter comply with the user-accessible surface temperature limits defined by applicable safety standards.

Table of contents

1 Product features

This chapter provides you with an overview of your product's features.

Standard configuration features

To identify a typical product configuration, read this section. Features vary depending on the model.

NOTE: Display head sold separately.

Pedestal stand

Countertop stand

- Display panel (wide-aspect ratio); FHD 1920 × 1080 resolution, antiglare, antismudge, available in landscape or portrait orientation in the following sizes:

NOTE: Display sold separately. For more information, refer to the documentation for your product.

  - 39.6 cm (15.6 in), 400 nits
  - 49.5 cm (19.5 in), 450 nits
  - 60.5 cm (23.8 in), 625 nits

NOTE: The typical brightness of the panel is measured in nits before antiglare coating.

- Add-on options:
  - HP Engage Express Countertop BCS cradle (includes HP Engage 2D G2 BCS)
  - HP Engage Express Countertop Mount
  - Pedestal stand shelves
  - Pedestal stand bag holder
- Peripheral options:
  - Payment arm with 75 mm VESA mount
  - Custom Modus3 Printer
  - HP Engage 2D G2 Barcode Scanner
  - Datalogic Magellan 1500i Barcode Scanner
- Payment options:
  - HP payment module
  - Third-party payment mounts through third-party options
- HP Engage Express Mini Hub
- Integrated peripheral options:
  - Indicator light; integrated into the head unit
  - Barcode scanner; available on left, right, or bottom of head unit
  - Magnetic strip reader (MSR) (integrated into the head unit as ordered; only available in landscape orientation)
  - Biometric fingerprint reader

Countertop components

To identify the countertop components, use this illustration and table.

NOTE: Configuration varies by model.

NOTE: Display head sold separately.

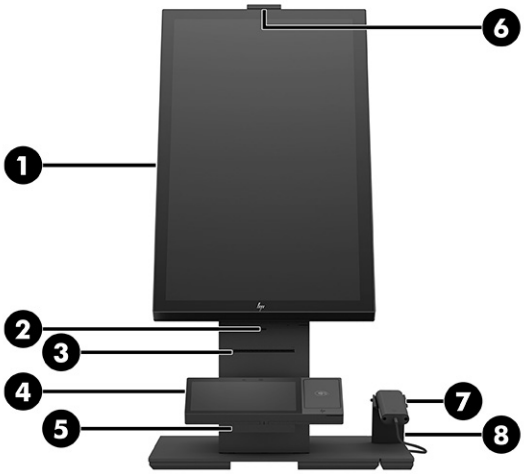


Table 1-1 Identifying the countertop components

Countertop components			
1	Display head	5	Payment arm[4]
2	Printer drawer pin hole[1]	6	Indicator light[5]
3	Custom Modus 3 Printer[2]	7	HP Engage 2D G2 Barcode Scanner
4	Payment device[3]	8	HP Engage Express Countertop Barcode Scanner Cradle

[1] Printer configurations include metal pin.

[2] Printer only available installed from the factory.

[3] Only available in the United States and does not include integrated battery.

[4] 75 mm VESA; compatible only with payment device; payment terminals and third-party payment mounts not included.

[5] Configure to order the indicator light on the display head. The indicator light cannot be configured at the same time as the customer-facing display (CFD).

Countertop rear components

To identify the countertop rear components, use this illustration and table.

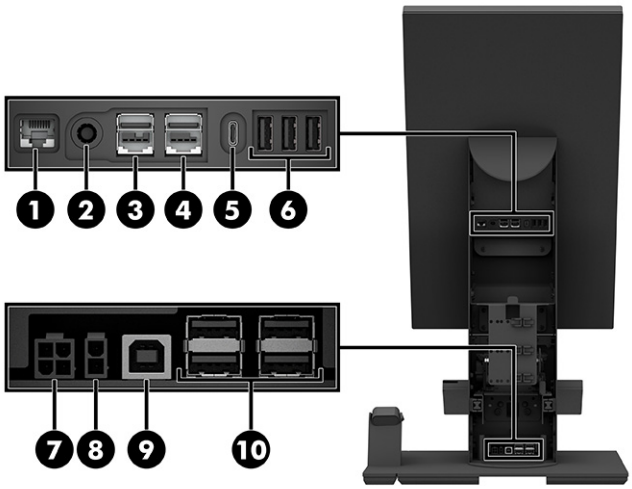


Table 1-2 Identifying the countertop rear components

Countertop rear components			
Pro VESA hub (sold separately)			
1	RJ-45 (network) connector	4	Powered USB 12 V port
2	Power connector	5	USB Type-C® port
3	Powered USB 24 V port	6	USB SuperSpeed 5 Gbps ports (3)
HP Engage Express Mini Hub			
7	4-pin power connector[1]	9	USB-B port[3]
8	2-pin power connector[2]	10	USB ports (4)

[1] Pro VESA hub power source

[2] Printer power source

[3] Connects to Pro VESA hub

Printer components

To identify the printer components, use this illustration and table.

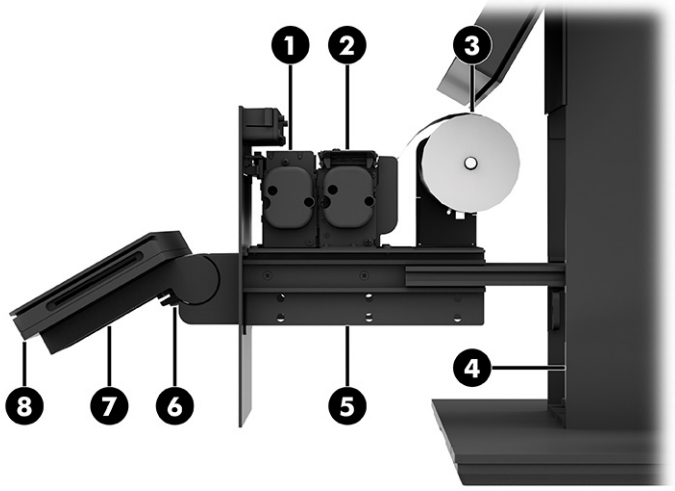


Table 1-3 Identifying the printer components

Printer components			
1	Printer presenter[1]	5	Printer drawer
2	Custom Modus3 Printer[2]	6	Payment arm adjustment screw
3	Paper roll	7	Payment arm[3]
4	Countertop stand	8	Payment device[4]

[1] Prevents paper jams

[2] Printer only available installed from the factory.

[3] 75 mm VESA; compatible only with payment device; payment terminals and third-party payment mounts not included.

[4] Only available in the United States and does not include integrated battery.

Pedestal components

To identify the pedestal components, use this illustration and table.

NOTE: Configuration varies by model.

NOTE: Display head sold separately.

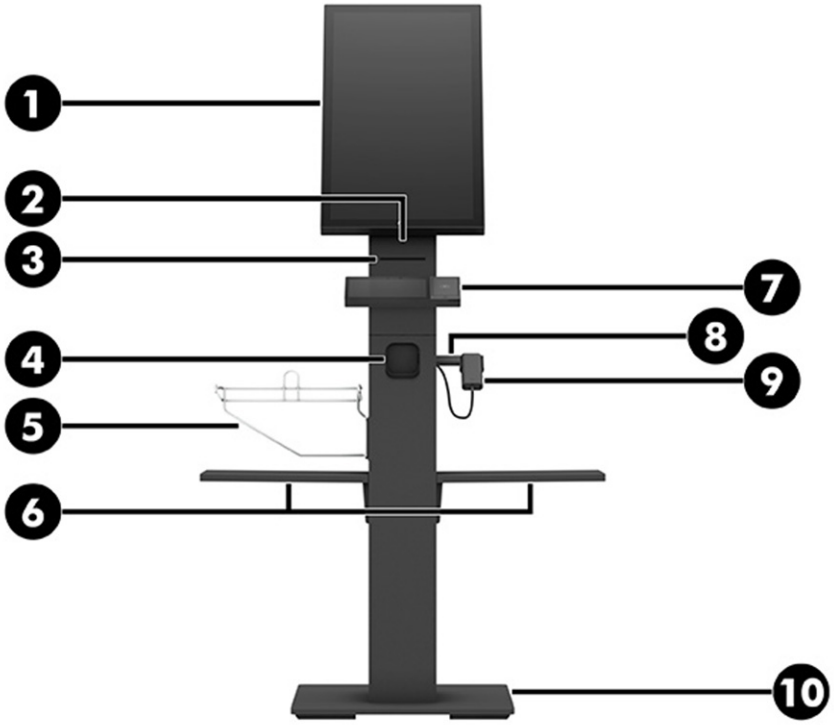


Table 1-4 Identifying the pedestal components

Pedestal components			
1	Display head	6	Shelves
2	Printer drawer pin hole[1]	7	Payment device[4]
3	Custom Modus 3 Printer[2]	8	HP Engage Express Countertop Barcode Scanner Cradle
4	Datalogic Magellan 1500i Barcode Scanner[3]	9	HP Engage 2D G2 Barcode Scanner
5	Bag holder	10	Base plate[5]

[1] Printer configurations include metal pin.

[2] Printer only available installed from the factory.

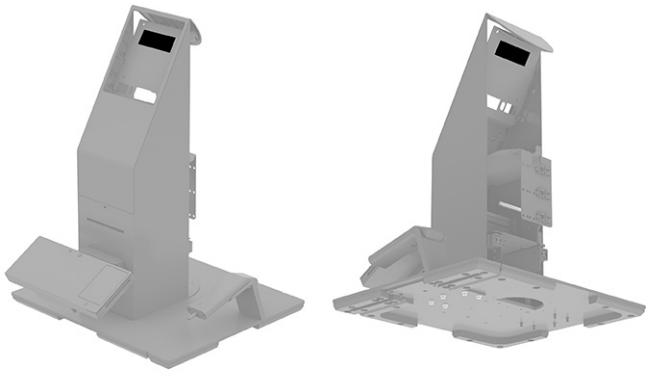
[3] Scanner only available installed from the factory.

[4] Payment terminal and mounting bracket not included.

[5] Mounting bolts not included. Pedestal must be mounted to the floor.

Serial number location

Each stand has a unique serial number and a product ID number that are located near the top of the product. Keep these numbers available when contacting customer service for assistance.



2 Illustrated parts catalog

Use this information to determine the spare parts that are available for the stand.

NOTE: HP continually improves and changes product parts. For complete and current information about supported parts for your stand, go to http://partsurfer.hp.com, select your country or region, and then follow the on-screen instructions.

Stand major components

To identify the stand major components, use this illustration and table.

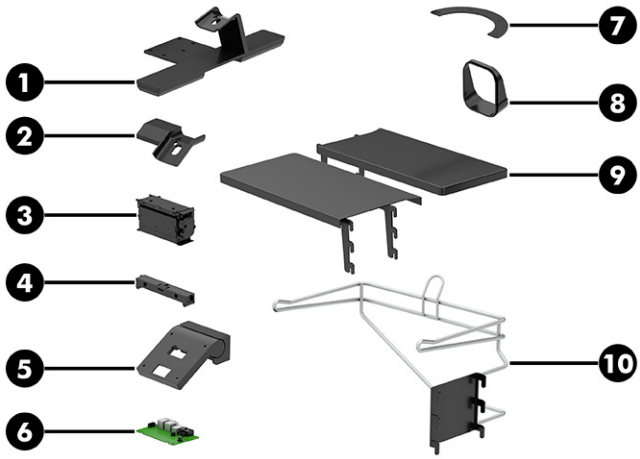


Table 2-1 Stand major components and their descriptions

Item	Description
(1)	Countertop barcode holder bracket
(2)	Pedestal barcode scanner holder
(3)	Printer
(4)	Printer drawer latch
(5)	Payment arm
(6)	Power board
(7)	Plastic spacer
(8)	Scanner bezel
(9)	Shelves (right and left)
(10)	Bag holder

3 Routine care, drive guidelines, and disassembly preparation

This information provides general service information for the computer. Adherence to the procedures and precautions is essential for proper service.

IMPORTANT: When the computer is plugged into an AC power source, DC voltage is always applied to the system board. You must disconnect the power cord from the power source before opening the computer to prevent electric shock, system board, or component damage.

Electrostatic discharge information

A sudden discharge of static electricity from your finger or other conductor can destroy static-sensitive devices or microcircuitry. Often the spark is neither felt nor heard, but damage occurs.

An electronic device exposed to electrostatic discharge (ESD) might not appear to be affected at all and can work perfectly throughout a normal cycle. The device might function normally for a while, but it has been degraded in the internal layers, reducing its life expectancy.

Networks built into many integrated circuits provide some protection, but in many cases, the discharge contains enough power to alter device parameters or melt silicon junctions.

IMPORTANT: To prevent damage to the device when you are removing or installing internal components, observe these precautions:

- Keep components in their electrostatic-safe containers until you are ready to install them.
- Before touching an electronic component, discharge static electricity by using the guidelines described in this section.
- Avoid touching pins, leads, and circuitry. Handle electronic components as little as possible.
- If you remove a component, place it in an electrostatic-safe container.

Generating static electricity

This table shows how humidity affects the electrostatic voltage levels generated by different activities. A product can be degraded by 700 V of static electricity.

- Different activities generate different amounts of static electricity.
- Static electricity increases as humidity decreases.

Table 3-1 **Static electricity occurrence based on activity and humidity**

	Relative humidity		
Event	**55%**	**40%**	**10%**

Table 3-1 Static electricity occurrence based on activity and humidity (continued)

	Relative humidity		
Walking across carpet	7,500 V	15,000 V	35,000 V
Walking across vinyl floor	3,000 V	5,000 V	12,000 V
Motions of bench worker	400 V	800 V	6,000 V
Removing DIPs (dual in-line packages) from plastic tube	400 V	700 V	2,000 V
Removing DIPs from vinyl tray	2,000 V	4,000 V	11,500 V
Removing DIPs from polystyrene foam	3,500 V	5,000 V	14,500 V
Removing bubble pack from PCB (printed circuit board)	7,000 V	20,000 V	26,500 V
Packing PCBs in foam-lined box	5,000 V	11,000 V	21,000 V
Multiple electric components can be packaged in plastic tubes, trays, or polystyrene foam.			

Preventing electrostatic damage to equipment

Many electronic components are sensitive to ESD. Circuitry design and structure determine the degree of sensitivity. The following packaging and grounding precautions are necessary to prevent static electricity damage to electronic components.

- To avoid hand contact, transport products in static-safe containers such as tubes, bags, or boxes.
- Protect all electrostatic parts and assemblies with conductive or approved containers or packaging.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-free stations.
- Place items on a grounded surface before removing them from their container.
- Always be properly grounded when touching a sensitive component or assembly.
- Avoid contact with pins, leads, or circuitry.
- Place reusable electrostatic-sensitive parts from assemblies in protective packaging or conductive foam.

Personal grounding methods and equipment

Use this equipment to prevent static electricity damage to electronic components.

- **Wrist straps** are flexible straps with a maximum of 1 MΩ ±10% resistance in the ground cords. To provide proper ground, a strap must be worn snug against bare skin. The ground cord must be connected and fit snugly into the banana plug connector on the grounding mat or workstation.
- **Heel straps/Toe straps/Boot straps** can be used at standing workstations and are compatible with most types of shoes or boots. On conductive floors or dissipative floor mats, use them on both feet with a maximum of 1 MΩ ±10% resistance between the operator and ground.

Table 3-2 Static shielding protection levels

Static shielding protection levels	
Method	Voltage

Table 3-2 **Static shielding protection levels (continued)**

Static shielding protection levels	
Antistatic plastic	1,500 V
Carbon-loaded plastic	7,500 V
Metallized laminate	15,000 V

Grounding the work area

To prevent static damage at the work area, use these precautions.

- Cover the work surface with approved static-dissipative material. Provide a wrist strap connected to the work surface and properly grounded tools and equipment.
- Use static-dissipative mats, foot straps, or air ionizers to give added protection.
- Handle electrostatic sensitive components, parts, and assemblies by the case or PCB laminate. Handle them only at static-free work areas.
- Turn off power and input signals before inserting and removing connectors or test equipment.
- Use fixtures made of static-safe materials when fixtures must directly contact dissipative surfaces.
- Keep work area free of nonconductive materials such as ordinary plastic assembly aids and polystyrene foam.
- Use field service tools, such as cutters, screwdrivers, and vacuums, that are conductive.

Recommended materials and equipment

HP recommends these materials and equipment to prevent static electricity.

- Antistatic tape
- Antistatic smocks, aprons, or sleeve protectors
- Conductive bins and other assembly or soldering aids
- Conductive foam
- Conductive tabletop workstations with ground cord of 1 MΩ ±10% resistance
- Static-dissipative table or floor mats with hard tie to ground
- Field service kits
- Static awareness labels
- Wrist straps and footwear straps providing 1 MΩ ±10% resistance
- Material handling packages
- Conductive plastic bags
- Conductive plastic tubes
- Conductive tote boxes

- Opaque shielding bags
- Transparent metallized shielding bags
- Transparent shielding tubes

Operating guidelines

This information details how to prevent overheating and to help prolong the life of the computer.

- Keep the computer away from excessive moisture, direct sunlight, and extremes of heat and cold.
- Operate the computer on a sturdy, level surface. Leave a 10.2 cm (4 inch) clearance on all vented sides of the computer and above the monitor to permit the required airflow.
- Never restrict the airflow into the computer by blocking any vents or air intakes. Do not place the keyboard, with the keyboard feet down, directly against the front of the desktop unit as this also restricts airflow.
- Occasionally clean the air vents on all vented sides of the computer. Lint, dust, and other foreign matter can block the vents and limit the airflow. Be sure to unplug the computer before cleaning the air vents.
- Never operate the computer with the cover or side panel removed.
- Do not stack computers on top of each other or place computers so near each other that they are subject to each other's recirculated or preheated air.
- If the computer is to be operated within a separate enclosure, intake and exhaust ventilation must be provided on the enclosure, and the same operating guidelines listed previously still apply.
- Keep liquids away from the computer and keyboard.
- Never cover the ventilation slots on the monitor with any type of material.
- Install or enable power management functions of the operating system or other software, including Sleep states.

Service considerations

Keep these considerations in mind during the disassembly and assembly of the computer.

Tools and software requirements

Servicing the computer requires these tools.

- 10 mm hex socket
- 7 mm hex socket
- 8 mm hex socket
- 2.5 mm Allen key wrench
- Phillips screwdriver

Screws

The screws used in the computer are not interchangeable. They could have standard or metric threads and might be of different lengths.

If you use an incorrect screw during the reassembly process, it can damage the unit. HP strongly recommends that you keep all screws that you remove during disassembly with the removed part and then return them to their proper locations.

IMPORTANT: As you remove each subassembly from the computer, place it away from the work area to prevent damage.

Cables and connectors

Use this information to properly handle cables.

Apply only the tension required to seat or unseat the cables during insertion or removal from the connector. Handle cables by the connector whenever possible. In all cases, avoid bending or twisting the cables, and route the cables so that they cannot be caught or snagged by parts being removed or replaced.

IMPORTANT: When servicing this computer, be sure to place cables in their proper location during the reassembly process. Improper cable placement can damage the computer.

4 Removal and replacement procedures

Adherence to these procedures and precautions is essential for proper service.

NOTE: Not all features listed in this guide are available on all stands.

NOTE: HP continually improves and changes product parts. For complete and current information about supported parts for your computer, go to https://partsurfer.hp.com/partsurfer/, select your country or region, and then follow the on-screen instructions.

Preparation for disassembly

Use this information to properly prepare to disassemble and reassemble the stand.

See Routine care, drive guidelines, and disassembly preparation on page 9 for initial safety procedures.

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.

   IMPORTANT: Turn off the computer before disconnecting any cables.

   Regardless of the power state, voltage is always present on the system board as long as the system is plugged into an active AC outlet. In some systems, the cooling fan is on even when the computer is in the Standby or Suspend modes. Always disconnect the power cord before servicing a unit.

2. Disconnect the power from the unit by unplugging the power cord from the computer.
3. Disconnect all external devices from the unit.

CAUTION: Beware of sharp edges inside the chassis.

NOTE: During disassembly, label each cable as you remove it, and note its position and routing. Keep all screws with the removed components.

Countertop rear covers

To remove the countertop rear covers, use this procedure and illustration.

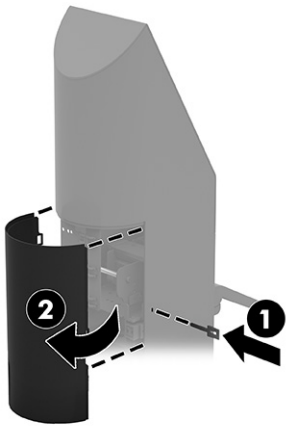
Before removing the countertop rear cover, follow these steps:

- Prepare the computer for disassembly (see Preparation for disassembly on page 14).

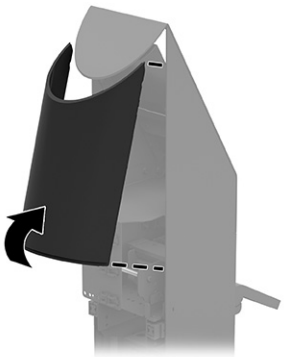
Remove the countertop rear covers:

1. To remove the lower cover, insert a key into the slot **(1)**, and then rotate the left side of the cover off the unit **(2)**.

   NOTE: You must remove the lower cover before you can remove the upper cover.



2. To remove the upper cover, pull the bottom of the cover away from the computer and remove it.



To install the countertop rear cover, reverse the removal procedure.

Pedestal rear cover

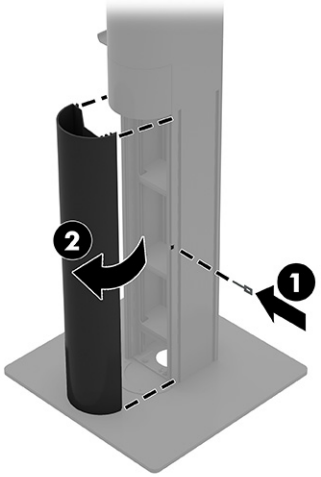
To remove the pedestal rear cover, use this procedure and illustration.

Before removing the pedestal rear cover, follow these steps:

- Prepare the computer for disassembly (see Preparation for disassembly on page 14).

Remove the pedestal rear cover:

- Insert a key into the slot **(1)**, and then rotate the right side of the cover off the pedestal **(2)**.



To install the pedestal rear cover, reverse the removal procedure.

Display head

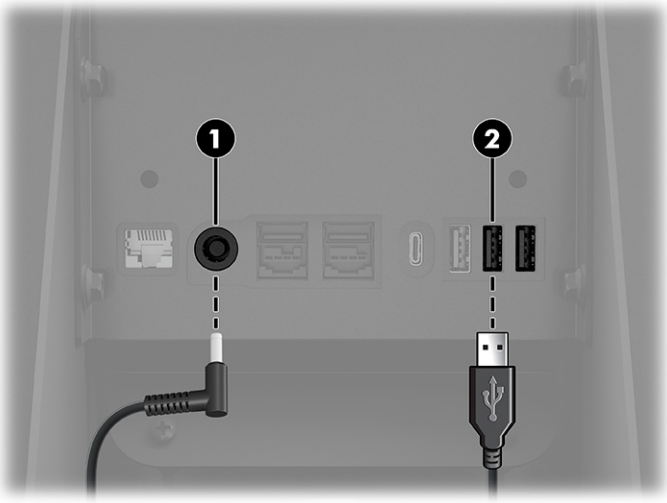
To remove the display head, use this procedure and illustration. The scanner bezel is installed in front of the internal scanner.

Before removing the display head, follow these steps:

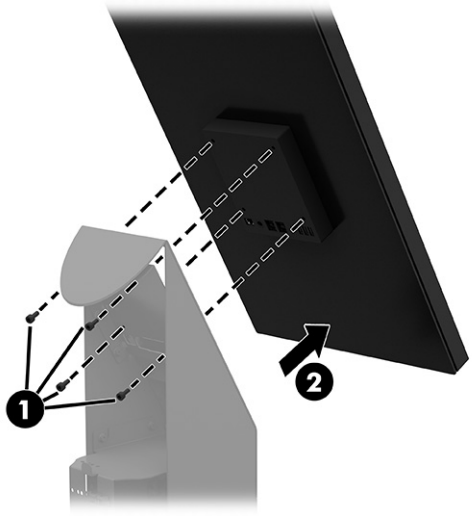
1. Prepare the computer for disassembly (see Preparation for disassembly on page 14).
2. Remove the countertop rear covers (see Countertop rear covers on page 14).

Remove the display head:

1. Disconnect the display head cables from the countertop unit.



2. Remove the four Phillips screws that secure the display head **(1)**, and then remove the display head **(2)**.



To install the display head, reverse the removal procedure.

Opening the printer drawer

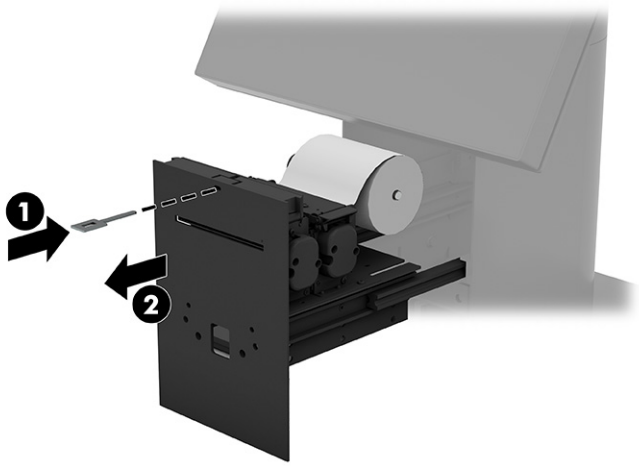
To open the printer drawer, use this procedure and illustration.

Before opening the printer drawer, follow these steps:

- Prepare the computer for disassembly (see Preparation for disassembly on page 14).

Open the printer drawer:

- Insert a key into the slot on the front of the printer **(1)**, and then pull the drawer out **(2)**.



Printer

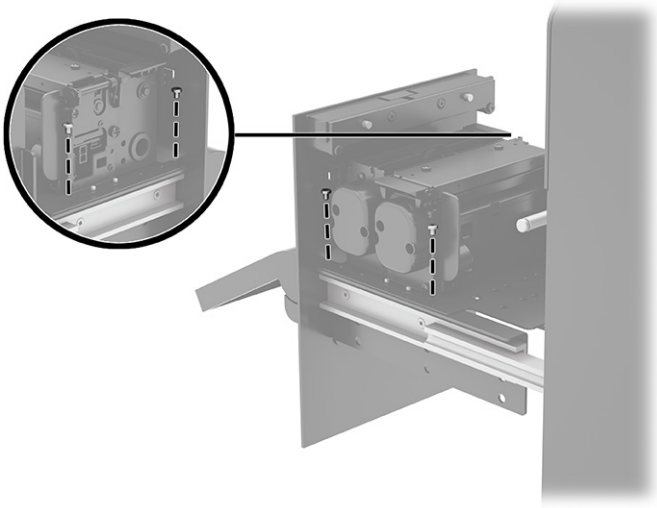
To remove the printer, use this procedure and illustration.

Before removing the printer, follow these steps:

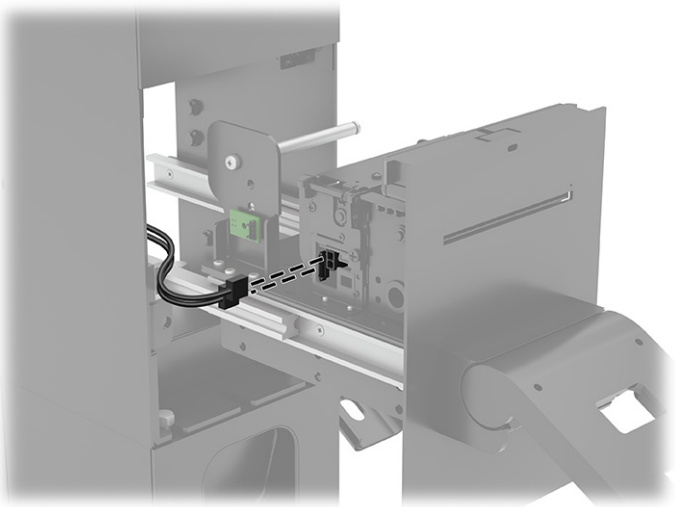
1. Prepare the computer for disassembly (see Preparation for disassembly on page 14).
2. Open the printer drawer (see Opening the printer drawer on page 17).

Remove the printer:

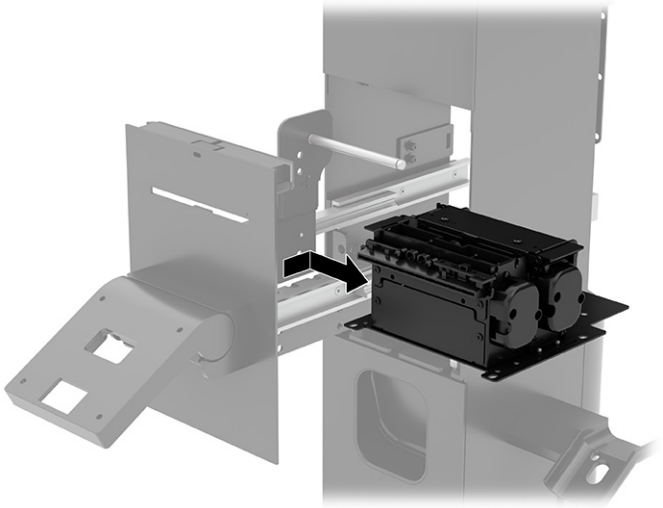
1. Remove the four Phillips screws that secure the printer to the drawer.



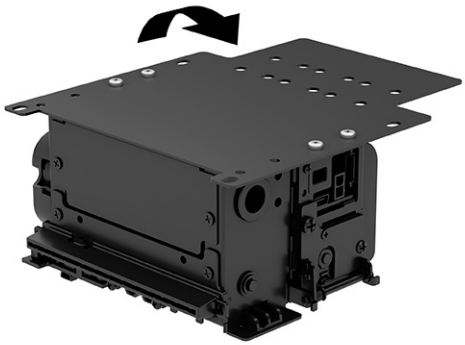
2. Disconnect two cables from the printer.



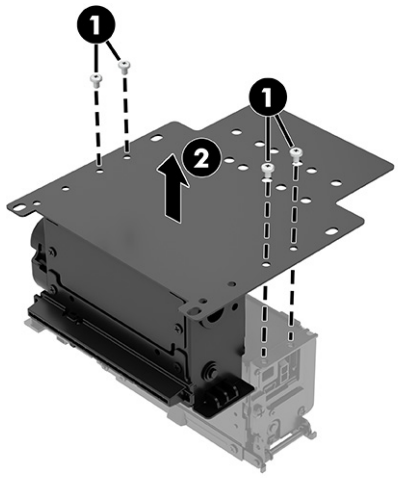
3. Lift the printer out from under the spindle.



4. Position the printer upside down.



5. Remove the four Phillips screws **(1)** that secure the bracket to the printer, and the remove the bracket **(2)**.



To install the printer, reverse the removal procedure.

Power board

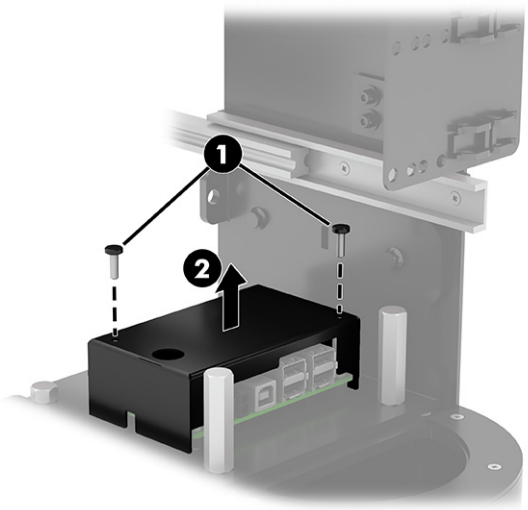
To remove the power board, use this procedure and illustration.

Before removing the power board, follow these steps:

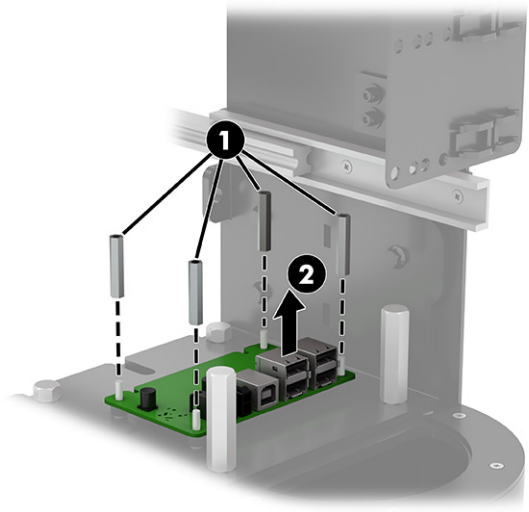
1. Prepare the computer for disassembly (see Preparation for disassembly on page 14).
2. Remove the countertop rear cover (see Countertop rear covers on page 14).

Remove the power board:

1. Remove the two thumbscrews from the power board bracket **(1)**.
2. Lift the bracket off the power board **(2)**.



3. Remove the four 10 mm hex bolts that secure the power board **(1)**.
4. Lift the power board straight up to remove it **(2)**.



To install the power board, reverse the removal procedure.

Countertop unit from pedestal

To remove the countertop unit from the pedestal, use this procedure and illustration.

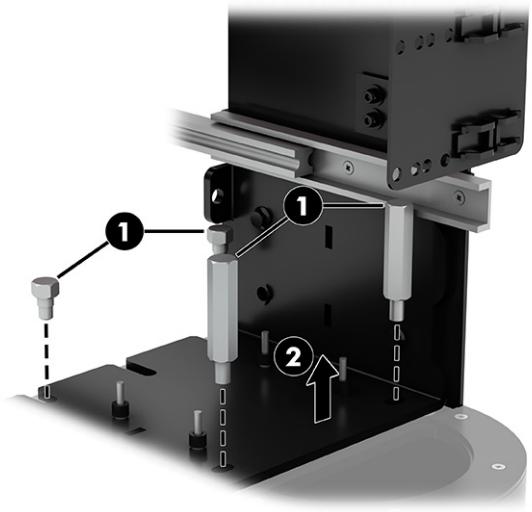
Before removing the countertop unit from the pedestal, follow these steps:

1. Prepare the computer for disassembly (see Preparation for disassembly on page 14).
2. Remove the countertop rear cover (see Countertop rear covers on page 14).
3. Open the printer drawer (see Opening the printer drawer on page 17).

Remove the countertop unit from the pedestal:

1. Remove the four 10 mm bolts **(1)** that secure the countertop unit to the pedestal.

2. Lift the countertop unit off the pedestal **(2)**.



To install the countertop unit onto the pedestal, reverse the removal procedure.

Connection spacer

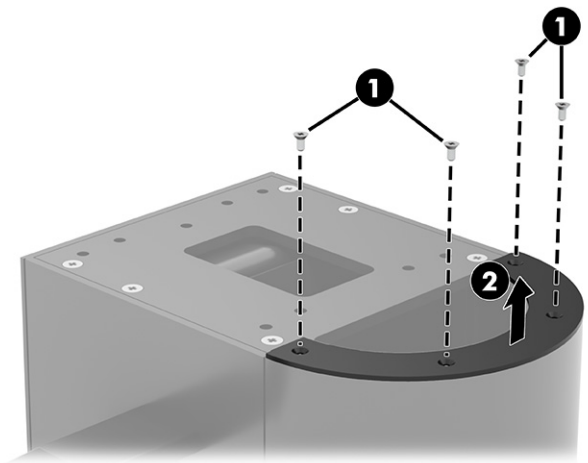
To remove the connection spacer, use this procedure and illustration.

Before removing the connection spacer, follow these steps:

1. Prepare the computer for disassembly (see Preparation for disassembly on page 14).
2. Remove the countertop rear cover (see Countertop rear covers on page 14).
3. Open the printer drawer (see Opening the printer drawer on page 17).
4. Remove the countertop unit from the pedestal (see Countertop unit from pedestal on page 21).

Remove the connection spacer:

- Remove the four Phillips screws that secure the spacer **(1)**, and then remove the spacer **(2)**.



To install the connection spacer, reverse the removal procedure.

Integrated scanner and bezel

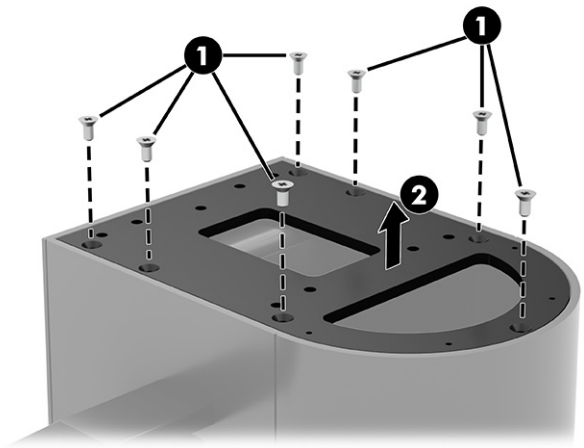
To remove the integrated scanner and bezel, use this procedure and illustration. The scanner bezel is installed in front of the integrated scanner.

Before removing the integrated scanner and bezel, follow these steps:

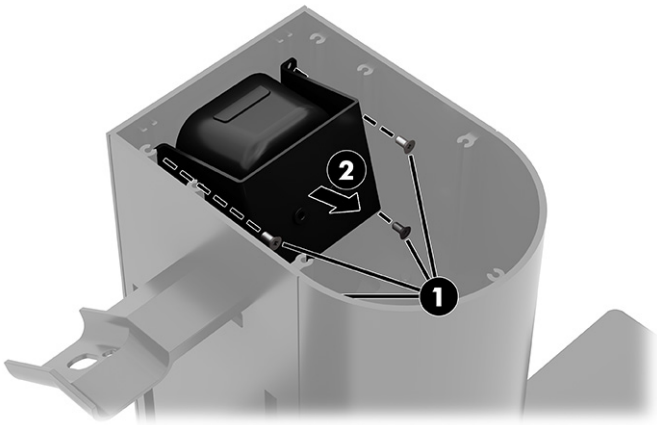
1. Prepare the computer for disassembly (see Preparation for disassembly on page 14).
2. Remove the countertop rear cover (see Countertop rear covers on page 14).
3. Open the printer drawer (see Opening the printer drawer on page 17).
4. Remove the countertop unit from the pedestal (see Countertop unit from pedestal on page 21).
5. Remove the connection spacer (see Connection spacer on page 22).

Remove the integrated scanner and bezel:

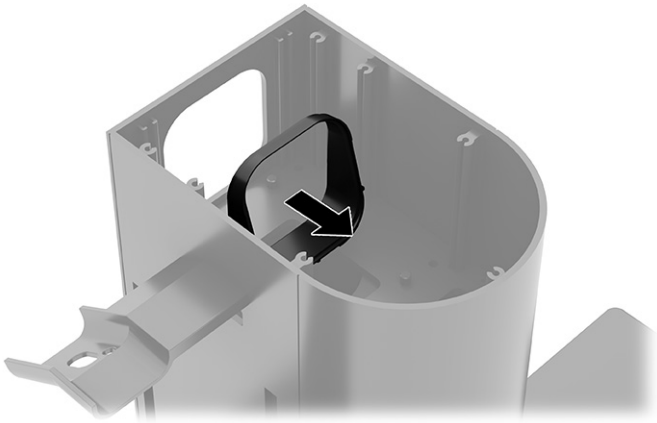
1. Remove the seven Phillips screws that secure the cover bracket **(1)**, and the remove the bracket **(2)**.



2. Remove the four Phillips screws that secure the internal scanner **(1)**, and the lift the scanner out of the pedestal **(2)**.



3. Pull the bezel into the pedestal to remove it.



To install the integrated scanner and bezel, reverse the removal procedure.

Printer drawer latch

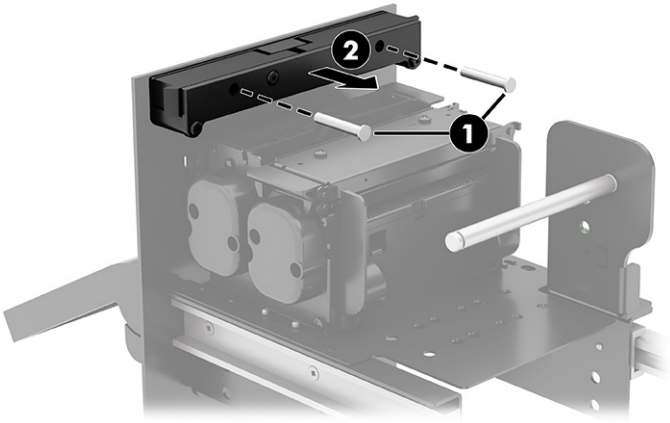
To remove the printer drawer latch, use this procedure and illustration.

Before removing the printer drawer latch, follow these steps:

1. Prepare the computer for disassembly (see Preparation for disassembly on page 14).
2. Open the printer drawer (see Opening the printer drawer on page 17).

Remove the printer drawer latch:

- Remove the two Phillips screws **(1)**, and then lift the latch out of the printer drawer **(2)**.



To install the printer drawer latch, reverse the removal procedure.

Countertop barcode scanner holder bracket

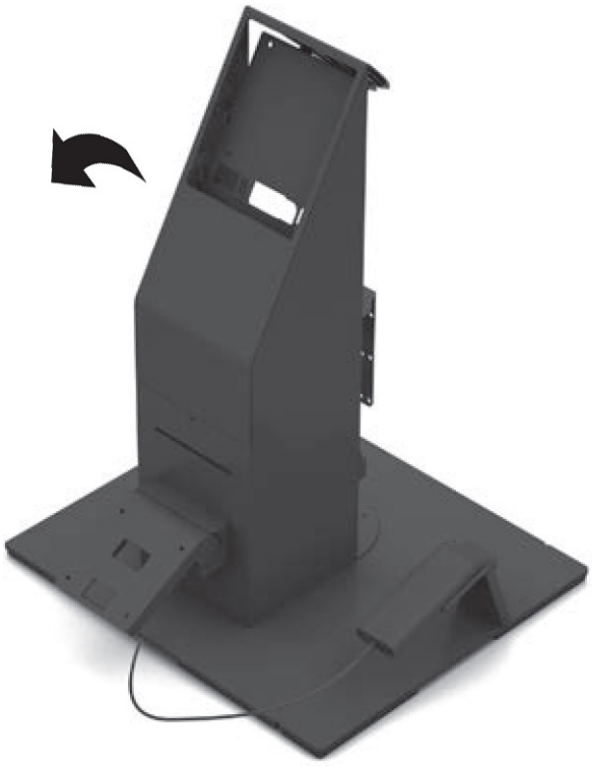
To remove the barcode scanner holder bracket, use this procedure and illustration.

Before removing the barcode scanner holder bracket, follow these steps:

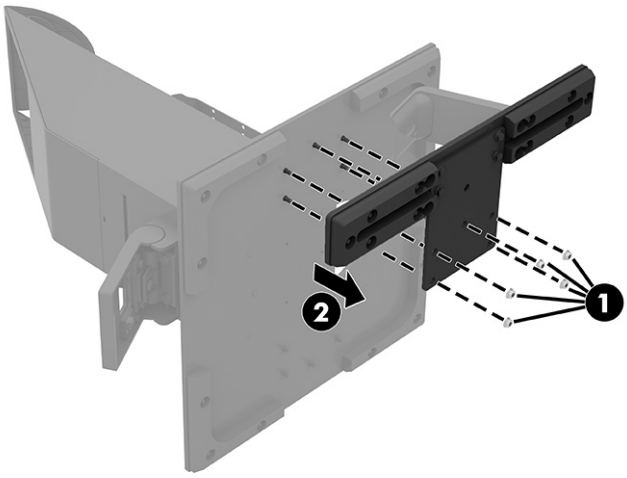
- Prepare the computer for disassembly (see Preparation for disassembly on page 14).

Remove the barcode scanner holder bracket:

1. Place the countertop unit on its side.



2. Remove the five 7 mm nuts that secure the bracket **(1)**, and then remove the bracket **(2)**.



To install the barcode scanner holder bracket, reverse the removal procedure.

Pedestal barcode scanner holder

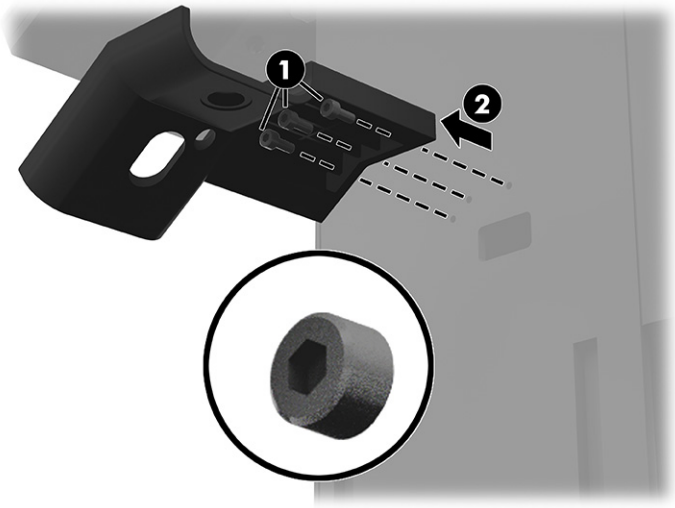
To remove the barcode scanner holder, use this procedure and illustration.

Before removing the barcode scanner holder, follow these steps:

- Prepare the computer for disassembly (see Preparation for disassembly on page 14).

Remove the barcode scanner holder:

- Remove the three 2.5 mm Allen screws **(1)** that secure the scanner holder, and then remove the holder **(2)**.



To install the barcode scanner holder, reverse the removal procedures.

Shelves

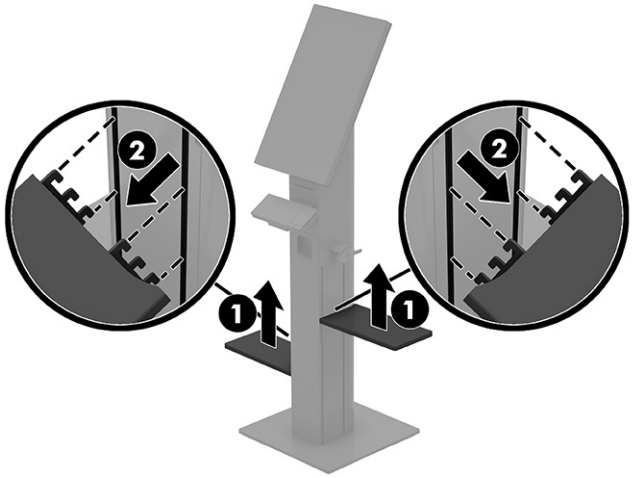
To remove the shelves from the pedestal, use this procedure and illustration.

Before removing the shelves, follow these steps:

1. Prepare the computer for disassembly (see Preparation for disassembly on page 14).
2. Open the pedestal rear cover (see Pedestal rear cover on page 15).

Remove the shelves:

- Lift up on the shelves **(1)**, and then pull the shelves away from the pedestal **(2)**.



To install the shelves, reverse the removal procedures.

Bag holder

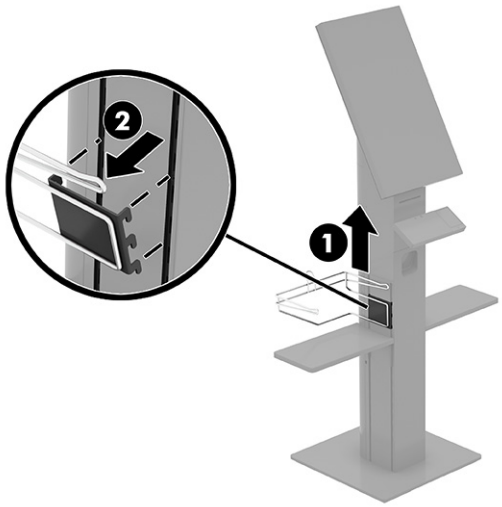
To remove the bag holder, use this procedure and illustration.

Before removing the bag holder, follow these steps:

- Prepare the computer for disassembly (see Preparation for disassembly on page 14).

Remove the bag holder:

- Lift up on the bag holder **(1)**, and then pull the holder out of the pedestal **(2)**.



To install the bag holder, reverse the removal procedures.

Payment arm

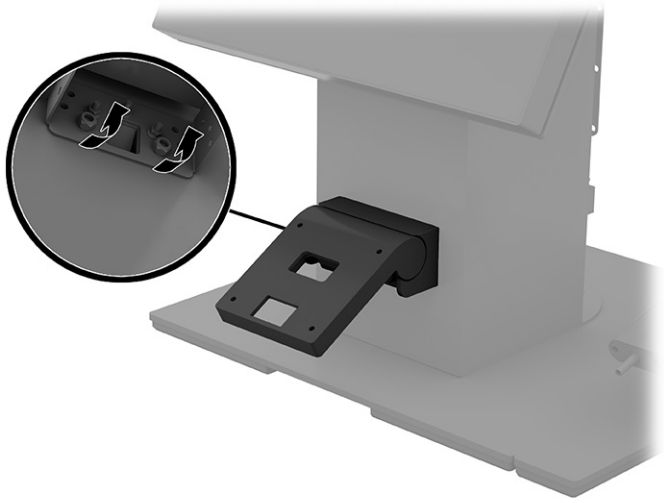
To remove the payment arm, use this procedure and illustration. Steps differ based on whether the arm is attached to a printer.

Before removing the payment arm, follow these steps:

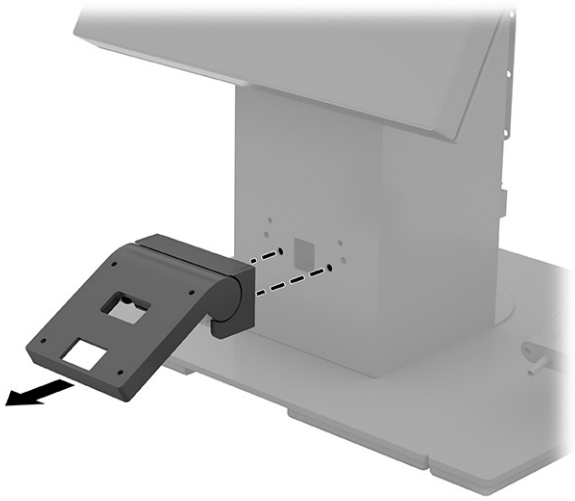
- Prepare the computer for disassembly (see Preparation for disassembly on page 14).

Remove the payment arm on models without a printer:

1. Remove the two 8 mm nuts that secure the payment arm.



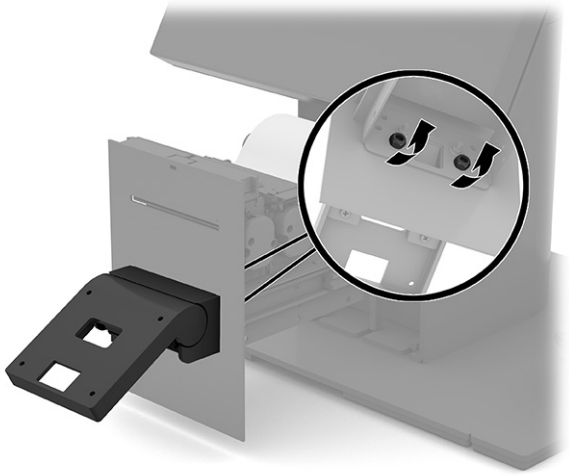
2. Remove the payment arm.



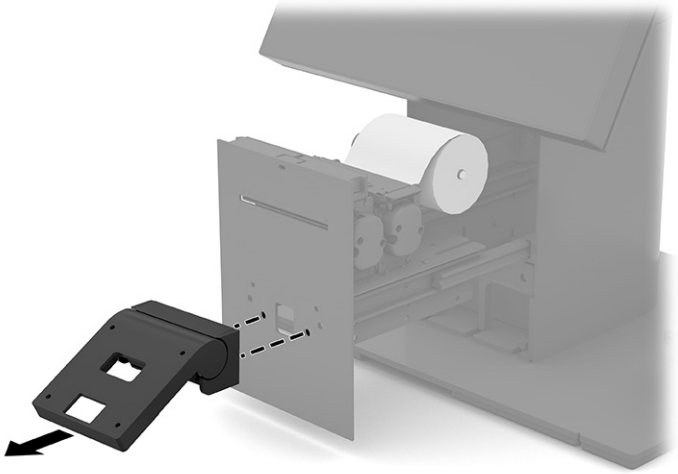
Remove the payment arm on models with a printer:

1. Open the printer drawer (see Opening the printer drawer on page 17).

2. Remove the two 8 mm nuts that secure the payment arm to the printer drawer.



3. Remove the payment arm.



To install the payment arm, reverse the removal procedure.

Payment device

To remove the payment device, use this procedure and illustration. Steps differ based on whether the device is attached to a printer.

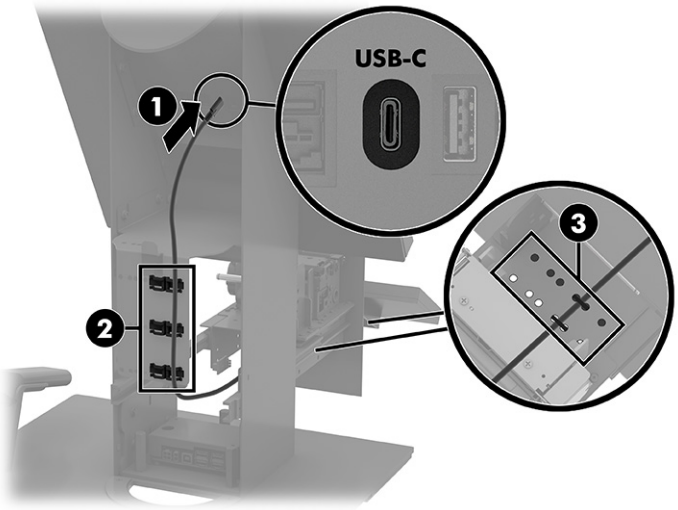
Before removing the payment device, follow this step:

- Prepare the computer for disassembly (see Preparation for disassembly on page 14).

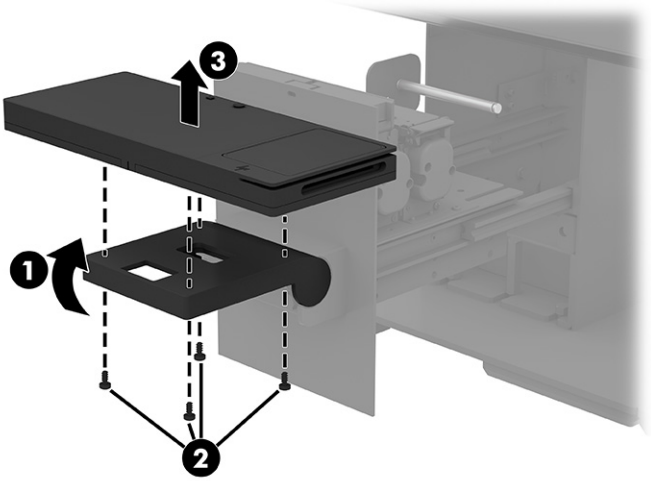
Remove the payment device on models without a printer:

1. Disconnect the payment device cable from the USB Type-C connector on the head unit **(1)**.
2. Remove the cable from the cable clips **(2)**.

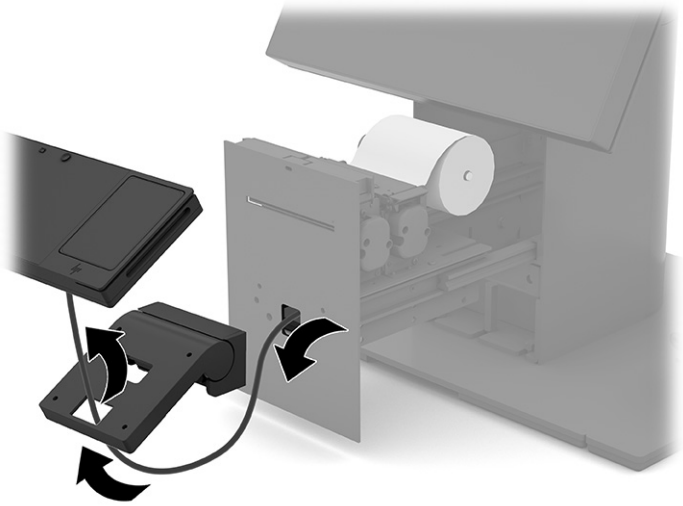
3. Remove the cable from the zip ties on the bottom of the printer drawer **(3)**.



4. Lift the payment arm to the horizontal position **(1)**.
5. Remove the four Phillips screws **(2)** that secure the payment device to the payment arm, and then remove the payment device **(3)**.



6. Pull the payment device cable out of the unit and the payment arm.



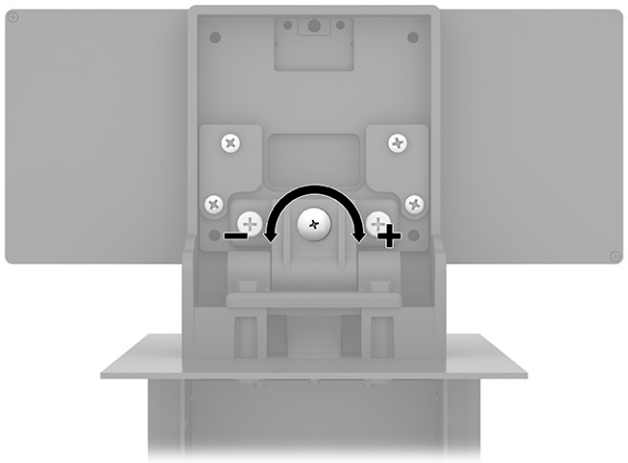
To install the payment device, reverse the removal procedure.

Adjusting the payment arm with 75 mm VESA mount

To adjust the payment arm, use this procedure and illustration.

To adjust the payment arm:

- On the bottom of the payment arm, use a Phillips screwdriver to loosen or tighten the screw to adjust the tension of the payment arm.



5 Power cord set requirements

The power supplies on some computers have external power switches.

The voltage select switch feature on the computer permits it to operate from any line voltage of 100 V AC to 120 V AC or 220 V AC to 240 V AC. Power supplies on those computers that do not have external power switches are equipped with internal switches that sense the incoming voltage and automatically switch to the proper voltage.

The power cord set received with the computer meets the requirements for use in the country where you purchased the equipment.

Power cord sets for use in other countries must meet the requirements of the country where you use the computer.

General requirements

These requirements are applicable to all countries.

1. The power cord must be approved by an acceptable accredited agency responsible for evaluation in the country where the power cord set will be installed.
2. The power cord set must have a minimum current capacity of 10A (7A Japan only) and a nominal voltage rating of 125 V AC or 250 V AC, as required by each country's power system.
3. The diameter of the wire must be a minimum of 0.75 mm^2 or 18AWG, and the length of the cord must be between 1.8 m (6 ft) and 3.6 m (12 ft).

The power cord should be routed so that it is not likely to be walked on or pinched by items placed upon it or against it. Particular attention should be paid to the plug, electrical outlet, and the point where the cord exits from the product.

⚠ **WARNING!** Do not operate this product with a damaged power cord set. If the power cord set is damaged in any manner, replace it immediately.

Japanese power cord requirements

For use in Japan, use only the power cord received with this product.

IMPORTANT: Do not use the power cord received with this product on any other products.

Country-specific requirements

This information provides additional requirements specific to a country.

Table 5-1 Power cord country-specific requirements

Country	Accrediting Agency	Country	Accrediting Agency
Australia (1)	EANSW	Italy (1)	IMQ
Austria (1)	OVE	Japan (3)	METI
Belgium (1)	CEBC	Norway (1)	NEMKO
Canada (2)	CSA	Sweden (1)	SEMKO
Denmark (1)	DEMKO	Switzerland (1)	SEV
Finland (1)	SETI	United Kingdom (1)	BSI
France (1)	UTE	United States (2)	UL
Germany (1)	VDE		

1. The flexible cord must be Type HO5VV-F, 3-conductor, 0.75mm^2 conductor size. Power cord set fittings (appliance coupler and plug) must bear the certification mark of the agency responsible for evaluation in the country where it will be used.
2. The flexible cord must be Type SVT or equivalent, No. 18 AWG, 3 conductor. The plug must be a 2-pole grounding type with a NEMA 5-15P (15 A, 125 V) or NEMA 6-15P (15 A, 250 V) configuration.
3. Appliance coupler, flexible cord, and plug must bear a T mark and registration number in accordance with the Japanese Dentori Law. Flexible cord must be Type VCT or VCTF, 3-conductor, 0.75 mm^2 conductor size. Plug must be a 2-pole grounding type with a Japanese Industrial Standard C8303 (7 A, 125 V) configuration.

6 Statement of memory volatility

For general information regarding nonvolatile memory in HP business computers, and to restore nonvolatile memory that can contain personal data after the system has been turned off and the hard drive has been removed, use these instructions.

HP business computer products that use Intel®-based or AMD®-based system boards contain volatile DDR memory. The amount of nonvolatile memory present in the system depends upon the system configuration. Intel-based and AMD-based system boards contain nonvolatile memory subcomponents as originally shipped from HP, with the following assumptions:

- No subsequent modifications were made to the system.
- No applications, features, or functionality were added to or installed on the system.

Following system shutdown and removal of all power sources from an HP business computer system, personal data can remain on volatile system memory (DIMMs) for a finite period of time and also remains in nonvolatile memory. Use the following steps to remove personal data from the computer, including the nonvolatile memory found in Intel-based and AMD-based system boards.

NOTE: If your tablet has a keyboard base, connect to the keyboard base before beginning steps in this chapter.

Current BIOS steps

Use these instructions to restore nonvolatile memory.

1. Follow these steps to restore the nonvolatile memory that can contain personal data. Restoring or reprogramming nonvolatile memory that does not store personal data is neither necessary nor recommended.

   a. Turn on or restart the computer, and then quickly press esc.

   NOTE: If the system has a BIOS administrator password, type the password at the prompt.

   b. Select **Main**, select **Apply Factory Defaults and Exit**, and then select **Yes** to load defaults. The computer restarts.

   c. During the restart, press esc while the "Press the ESC key for Startup Menu" message is displayed at the bottom of the screen.

   NOTE: If the system has a BIOS administrator password, type the password at the prompt.

   d. Select the **Security** menu, select **Restore Security Settings to Factory Defaults**, and then select **Yes** to restore security level defaults. The computer reboots.

   e. During the reboot, press esc while the "Press the ESC key for Startup Menu" message is displayed at the bottom of the screen.

   NOTE: If the system has a BIOS administrator password, type the password at the prompt.

f. If an asset or ownership tag is set, select the **Security** menu and scroll down to the **Utilities** menu. Select **System IDs**, and then select **Asset Tracking Number**. Clear the tag, and then make the selection to return to the prior menu.

g. If a DriveLock password is set, select the **Security** menu, and scroll down to **Hard Drive Utilities** under the **Utilities** menu. Select **Hard Drive Utilities**, select **DriveLock**, and then clear the check box for **DriveLock password on restart**. Select **OK** to proceed.

h. Select the **Main** menu, and then select **Reset BIOS Security to factory default**. Select **Yes** at the warning message. The computer reboots.

i. During the reboot, press esc while the "Press the ESC key for Startup Menu" message is displayed at the bottom of the screen.

NOTE: If the system has a BIOS administrator password, type the password at the prompt.

j. Select the **Main** menu, select **Apply Factory Defaults and Exit**, select **Yes** to save changes and exit, and then select **Shutdown**.

k. Reboot the system. If the system has a Trusted Platform Module (TPM), fingerprint reader, or both, one or two prompts will appear—one to clear the TPM and the other to Reset Fingerprint Sensor. Press or tap f1 to accept or f2 to reject.

l. Remove all power and system batteries for at least 24 hours.

2. Complete one of the following:

- Remove and retain the storage drive.

  – or –

- Clear the drive contents by using a third-party utility designed to erase data from an SSD.

  – or –

- Clear the contents of the drive by using the following BIOS Setup Secure Erase command option steps:

NOTE: If you clear data using Secure Erase, you cannot recover it.

a. Turn on or restart the computer, and then quickly press esc.

b. Select the **Security** menu and scroll down to the esc menu.

c. Select **Hard Drive Utilities**.

d. Under **Utilities**, select **Secure Erase**, select the hard drive storing the data you want to clear, and then follow the on-screen instructions to continue.

   – or –

   Clear the contents of the drive using the following Disk Sanitizer commands steps:

   i. Turn on or restart the computer, and then quickly press esc.

   ii. Select the **Security** menu and scroll down to the **Utilities** menu.

   iii. Select **Hard Drive Utilities**.

iv. Under **Utilities**, select **Disk Sanitizer**, select the hard drive with the data that you want to clear, and then follow the on-screen instructions to continue.

NOTE: The amount of time it takes for Disk Sanitizer to run can take several hours. Plug the computer into an AC outlet before starting.

Nonvolatile memory usage

Use this table to troubleshoot nonvolatile memory usage.

Table 6-1 Troubleshooting steps for nonvolatile memory usage

Description	Volatility description	Storage user data	How to erase
Primary storage device, holds the OS, applications, and application settings	Non-volatile, 8-256 GB of eMMC or NVMe SSD storage, removable	Yes[1]	Follow instructions below under “Erase the Primary Storage Device”
System memory (RAM), holds transient data during system operation	Volatile, SODIMM socket. Removable (4 GB/8 GB/16 GB)	Yes	Unplug unit from power
Permanent system BIOS settings*	Non-volatile; ?? KB; stored <<where>>,	No[2]	Follow instructions below under “Clearing BIOS Settings”
System boot ROM (BIOS)	Non-volatile memory, 128 Mbit (16 MB) socketed, removable	No	Download the latest BIOS for your model from the HP website and follow the instructions to flash the BIOS that are on the website
RTC (CMOS) RAM	Volatile memory, 256 bytes located in AMD embedded System on Chip (SoC)	No	Unplug unit from main power, remove top cover and press **Clear CMOS** button
Keyboard/mouse (ROM)	Non-volatile, 2 KB embedded in the super I/O controller (SIO2)	Yes	N/A
Keyboard/mouse (RAM)	Volatile, 256 bytes embedded in the super I/O controller (SIO2)	No	Unplug unit from main power
LOM EEPROM	Non-volatile, 2 MB embedded in LAN controller	No	N/A
Trusted Platform Module (TPM)	Non-volatile; 51 KB ROM for firmware and 38 KB system parametric data	No[3]	Follow instructions below under “Clearing TPM”

[1] Under typical operation, the only user data stored on the primary storage device are preferences for device configuration and settings for connections. However, the administrator can configure the system to allow users to store data locally.

[2] Only user data potentially stored in BIOS Settings are the ownership and asset tags, administrator password, and startup password.

[3] The Trusted Platform Module may contain encrypted passwords or certificates generated from user or administrator input.

Questions and answers

Use this section to answer your questions about nonvolatile memory.

1. **How can the BIOS settings be restored (returned to factory settings)?**

IMPORTANT: The restore defaults feature does not securely erase any information on your hard drive. See question and answer 6 for steps to securely erase information.

The restore defaults feature does not reset the Custom Secure Boot keys. See question and answer 7 for information about resetting the keys.

   a. Turn on or restart the computer, and then quickly press esc.

   b. Select **Main**, and then select **Apply Factory Defaults and Exit**.

   c. Follow the on-screen instructions.

   d. Select **Main**, select **Save Changes and Exit**, and then follow the on-screen instructions.

2. **What is a UEFI BIOS, and how is it different from a legacy BIOS?**

The Unified Extensible Firmware Interface (UEFI) BIOS is an industry-standard software interface between the platform firmware and an operating system (OS). It replaces the older BIOS architecture but supports much of the legacy BIOS functionality.

Like the legacy BIOS, the UEFI BIOS provides an interface to display the system information and configuration settings and to change the configuration of your computer before an OS is loaded. BIOS provides a secure runtime environment that supports a Graphic User Interface (GUI). In this environment, you can use either a pointing device (touch screen, touchpad, pointing stick, or USB mouse) or the keyboard to navigate and make menu and configuration selections. The UEFI BIOS also contains basic system diagnostics.

The UEFI BIOS provides functionality beyond that of the legacy BIOS. In addition, the UEFI BIOS works to initialize the computer's hardware before loading and executing the OS; the runtime environment allows the loading and execution of software programs from storage devices to provide more functionality, such as advanced hardware diagnostics (with the ability to display more detailed system information) and advanced firmware management and recovery software.

HP has provided options in Computer Setup (BIOS) to allow you to run in legacy BIOS, if required by the operating system. Examples of this requirement would be if you upgrade or downgrade the OS.

3. **Where is the UEFI BIOS located?**

The UEFI BIOS is located on a flash memory chip. You must use a utility to write to the chip.

4. **What kind of configuration data is stored on the DIMM Serial Presence Detect (SPD) memory module? How would this data be written?**

The DIMM SPD memory contains information about the memory module, such as size, serial number, data width, speed and timing, voltage, and thermal information. This information is written by the module manufacturer and stored on an EEPROM. You cannot write to this EEPROM when the memory module is installed in a computer. Third-party tools do exist that can write to the EEPROM when the memory module is not installed in a computer. Various third-party tools are available to read SPD memory.

5. **What is meant by "Restore the nonvolatile memory found in Intel-based system boards"?**

This message relates to clearing the Real Time Clock (RTC) CMOS memory that contains computer configuration data.

6. **How can the BIOS security be reset to factory defaults and erase the data?**

IMPORTANT: Resetting results in the loss of information.

These steps do not reset Custom Secure Boot Keys. See question and answer 7 for information about resetting the keys.

a. Turn on or restart the computer, and then quickly press esc.

b. Select **Main**, and then select **Reset Security to Factory Defaults**.

c. Follow the on-screen instructions.

d. Select **Main**, select **Save Changes and Exit**, and then follow the on-screen instructions.

7. **How can the Custom Secure Boot Keys be reset?**

Secure Boot is a feature to ensure that only authenticated code can start on a platform. If you enabled Secure Boot and created Custom Secure Boot Keys, disabling Secure Boot does not clear the keys. You must also select to clear the Custom Secure Boot Keys. Use the same Secure Boot access procedure that you used to create the Custom Secure Boot Keys, but select to clear or delete all Secure Boot Keys.

a. Turn on or restart the computer, and then quickly press esc.

b. Select the **Security** menu, select **Secure Boot Configuration**, and then follow the on-screen instructions.

c. At the **Secure Boot Configuration** window, select **Secure Boot**, select **Clear Secure Boot Keys**, and then follow the on-screen instructions to continue.

Using HP Sure Start (select products only)

Select computer models are configured with HP Sure Start, a technology that continuously monitors your computer's BIOS for attacks or corruption.

If the BIOS becomes corrupted or is attacked, HP Sure Start restores the BIOS to its previously safe state, without user intervention. Those select computer models ship with HP Sure Start configured and enabled. HP Sure Start is configured and already enabled so that most users can use the HP Sure Start default configuration. Advanced users can customize the default configuration.

To access the latest documentation on HP Sure Start, go to http://www.hp.com/support.

7 Specifications

This section provides specifications for your computer.

Table 7-1 Specifications

	Metric	U.S.
Countertop + 60.5 cm (23.8 inch) display head		
Landscape (L×W×H)	350 × 568 × 629	13.78 × 22.36 × 24.78
Portrait	350 × 350 × 729	13.78 × 13.78 × 28.72
Pedestal + 60.5 cm (23.8 inch) display head		
Landscape	457 × 568 × 1395	17.99 × 22.36 × 54.94
Portrait	457 × 457 × 1495	17.99 × 17.99 × 58.87
Countertop + 49.5 cm (19.5 inch) display head		
Landscape	350 × 495 × 610	13.78 × 19.48 × 24.01
Portrait	350 × 350 × 695	13.78 × 13.78 × 27.37
Pedestal + 49.5 cm (19.5 inch) display head		
Landscape	457 × 495 × 1376	17.99 × 19.48 × 54.17
Portrait	457 × 457 × 1461	17.99 × 17.99 × 57.53
Countertop + 39.5 cm (15.6 inch) display head		
Landscape	350 × 398 × 586	13.78 × 15.65 × 23.08
Portrait	350 × 350 × 651	13.78 × 13.78 × 25.65
Pedestal + 39.5 cm (15.6 inch) display head		
Landscape	457 × 457 × 1352	17.99 × 17.99 × 53.24
Portrait	457 × 457 × 1407	17.99 × 17.99 × 55.41
Display head, 60.5 cm (23.8 inch) models		
Height	29.4 mm	1.2 in
Width (landscape)	576.4 mm	22.7 in
Width (portrait)	570.4 mm	22.5 in
Depth	339.9 mm	13.4 in
Display head, 49.5 cm (19.5 inch) models		
Height	29.4 mm	1.2 in
Width (landscape)	494.8 mm	19.5 in
Width (portrait)	488.8 mm	19.2 in
Depth	292.6 mm	11.5 in
Display head, 39.5 cm (15.6 inch) models		

Table 7-1 Specifications (continued)

	Metric	U.S.
Height	26.4 mm	1.0 in
Width (landscape)	397.6 mm	15.7 in
Width (portrait)	397.6 mm	15.7 in
Depth	241.0 mm	9.5 in
Display head weight		
60.5 cm (23.8 inch) models	6.8 kg	15.0 lbs
49.5 cm (19.5 inch) models	5.7 kg	12.6 lb
39.5 cm (15.6 inch) models	3.37 kg	7.4 lbs
Temperature range		
Operating	10°C to 35°C	50°C to 95°F
Nonoperating	-20°C to 60°C	-4°F to 140°F
NOTE: Operating temperature is derated 1.0°C per 300 m (1000 ft) to 3000 m (10,000 ft) above sea level; no direct sustained sunlight. Maximum rate of change is 10°C/hr. The upper limit might be limited by the type and number of options installed.		
Maximum altitude (unpressurized)		
Operating	3,048 m	10,000 ft
Nonoperating	9,144 m	30,000 ft
Relative humidity (noncondensing)		
Operating	10% to 90%	
Nonoperating (38.7°C max wet bulb)	5% to 95%	
Power supply		
Operating voltage range	90 V AC to 264 V AC	
Rated voltage range[1]	100 V AC to 240 V AC	
Rated line frequency	50 Hz to 60 Hz	
Operating line frequency	47 Hz to 63 Hz	
Power supply	280 W	
	230 W	

[1] This system uses an active power factor-corrected power supply. This allows the system to pass the CE mark requirements for use in the countries of the European Union. The active power factor-corrected power supply also has the added benefit of not requiring an input-voltage range select switch.

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