

**Lenovo**<sup>TM</sup>

**ThinkVision**

**T22v-20** Flat Panel Monitor

**User's Guide**

**Machine Type: 61FB**

**Think**

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# Product Number

## 61FB-MAR6-WW



**First Edition (01 2020)**

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# Safety information

## General Safety guidelines

For tips to help you use your computer safely, go to:

<http://www.lenovo.com/safety>

Before installing this product, read the Safety Information.

مع، يجب قراءة دات السلامة

Antes de instalar este produto, leia as Informações de Segurança.

在安裝本產品之前，請仔細閱讀 **Safety Information** (安全信息)。

Prije instalacije ovog produkta obavezno pročitajte Sigurnosne Upute.

Před instalací tohoto produktu si přečtěte příručku bezpečnostních instrukcí.

Læs sikkerhedsforskrifterne, før du installerer dette produkt.

Ennen kuin asennat tämän tuotteen, lue turvaohjeet kohdasta Safety Information

Avant d'installer ce produit, lisez les consignes de sécurité.

Vor der Installation dieses Produkts die Sicherheitshinweise lesen.

Πριν εγκαταστήσετε το προϊόν αυτό, διαβάστε τις πληροφορίες ασφάλειας (safety information).

לפני שתתקין מוצר זה, קראו את הוראות הבטיחות.

A termék telepítése előtt olvassa el a Biztonsági előírásokat!

Prima di installare questo prodotto, leggere le Informazioni sulla Sicurezza

製品の設置の前に、安全情報をお読みください。

본 제품을 설치하기 전에 안전 정보를 읽으십시오.

Пред да се инсталира овој продукт, прочитајте информацијата за безбедност.

Lees voordat u dit product installeert eerst de veiligheidsvoorschriften.

Les sikkerhetsinformasjonen (Safety Information) før du installerer dette produktet.

Przed zainstalowaniem tego produktu, należy zapoznać się

z książką "Informacje dotyczące bezpieczeństwa" (Safety Information).

Antes de instalar este produto, leia as Informações de Segurança.

Перед установкой продукта прочтите инструкции по технике безопасности.

Pred inštaláciou tohto produktu si prečítajte bezpečnostné informácie.

Pred namestitvijo tega proizvoda preberite Varnostne informacije.

Antes de instalar este producto lea la información de seguridad.

Läs säkerhetsinformationen innan du installerar den här produkten.

សូមអានព័ត៌មានល្អិតល្អន់ មុនពេលចាប់ផ្តើមបញ្ចូលកម្មវិធី

安裝本產品之前，請先閱讀「安全諮詢」。

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# Safety and Maintenance Guidelines

## Important Safety Information

The power cord is designed for use with your monitor. To use a different cord, use only a power source and connection compatible with this monitor.



**WARNING:** Always connect your monitor, the computer, and other equipment to a grounded (earthed) power outlet. To reduce the risk of electric shock or damage to your equipment, do not disable the power cord grounding feature. The grounding plug is an important safety feature.



**WARNING:** For your safety, be sure that the grounded power outlet you plug the power cord into is easily accessible to the operator and located as close to the equipment as possible. To disconnect power from the equipment, unplug the power cord from the power outlet by grasping the plug firmly. Never pull on the cord.



**CAUTION:** To protect your monitor, as well as your computer, connect all power cords for your computer and its peripheral devices (such as a monitor, printer, or scanner) to a surge protection device such as a power strip with surge protection or uninterruptible power supply (UPS). Not all power strips provide surge protection; the power strips must be specifically labelled as having this ability. Use a power strip whose manufacturer offers a damage replacement policy, so you can replace your equipment if surge protection fails.



**CAUTION:** A certified power supply cord has to be used with this equipment. The relevant national installation and/or equipment regulations shall be considered. A certified power supply cord not lighter than ordinary polyvinyl chloride flexible cord according to IEC 60227 (designation H05VV-F 3G 0.75mm<sup>2</sup> or H05VVH2-F2 3G 0.75mm<sup>2</sup>) shall be used. An alternative flexible cord is synthetic rubber.

## Safety Precautions

- Use only a power source and connection compatible with this monitor, as indicated on the label/back plate of the monitor.
- Be sure the total ampere rating of the products connected to the outlet does not exceed the current rating of the electrical outlet, and the total ampere rating of the products connected to the power cord does not exceed the rating of the power cord. Look on the power label to determine the ampere rating (Amps or A) for each device.
- Install your monitor near a power outlet that you can easily reach. Disconnect the monitor by grasping the plug firmly and pulling it from the outlet. Never disconnect the monitor by pulling the cord.
- Do not allow anything to rest on the power cord. Do not walk on the cord.
- While using VESA mount application, the AC Inlet must face to down side. Do not face any other position.

## Maintenance Guidelines

To enhance the performance and extend the life of your monitor:

- Do not open your monitor cabinet or attempt to service this product yourself. If your monitor is not operating properly or has been dropped or damaged, contact your Lenovo authorized dealer, reseller, or service provider.
- Adjust only those controls that are described in the operating instructions.
- Turn your monitor off when not in use. You can substantially increase the life expectancy of the monitor by using a screen saver program and turning off the monitor when not in use.
- Keep your monitor in a well-ventilated area, away from excessive light, heat, or moisture.
- Slots and openings in the cabinet are provided for ventilation. These openings must not be blocked or covered. Never push objects of any kind into cabinet slots or other openings.
- Unplug the monitor from the power outlet before cleaning. Do not use liquid cleaners or aerosol cleaners.
- Do not drop the monitor or place it on an unstable surface.
- When removing the monitor base, you must lay the monitor face down on a soft area to prevent it from getting scratched, defaced, or broken.

## Cleaning the Monitor

The monitor is a high-quality optical device that requires special care when cleaning. To clean the monitor, follow these steps:

1. Turn off the computer and the monitor.
2. Unplug your monitor from the power outlet before cleaning.



**CAUTION:** Do not use benzene, thinner, ammonia, or any volatile substance to clean the monitor screen or cabinet. These chemicals may damage the monitor. Do not use liquid or aerosol cleaners. Never use water to clean an LCD screen.

3. Wipe the screen with a dry, soft, clean cloth. If the screen requires additional cleaning, use an antistatic screen cleaner.
4. Dust the monitor housing. Use a damp cloth to clean the cabinet. If the cabinet requires additional cleaning, use a clean cloth dampened with isopropyl alcohol.
5. Plug in the monitor.
6. Turn on the monitor and the computer.

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# Chapter 1 Getting started

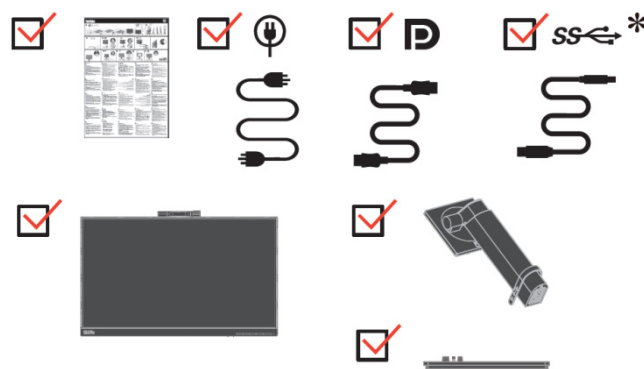
This User's Guide contains detailed information on the ThinkVision® T22v-20 Flat Panel Monitor. For a quick overview, please see the Setup Poster that was shipped with your monitor.

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## Shipping contents

The product package should include the following items:

- Information Flyer
- Flat Panel Monitor
- Monitor stand
- Monitor base
- DP cable
- Power Cord
- USB A-B Cable

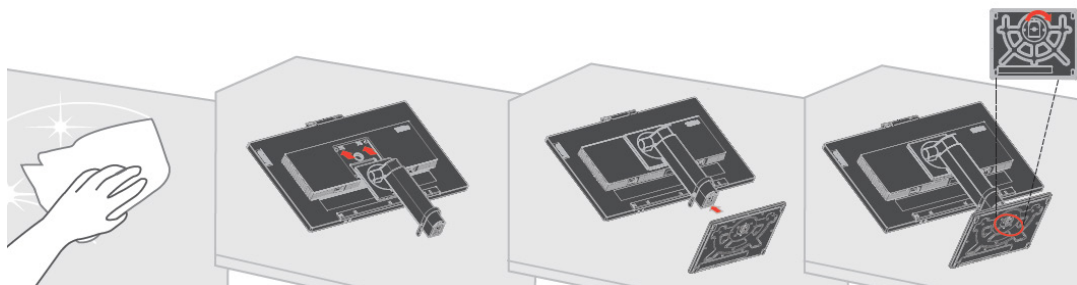


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## Notice for use

To setup your monitor, please see the illustrations below.

**Note:** Do not touch the monitor within the screen area. The screen area is glass and can be damaged by rough handling or excessive pressure.



1. Place your monitor with the screen face down on a soft flat surface.
2. Align the stand assembly bracket to the monitor.
3. Insert the base towards the stand and tighten the thumbscrew.

**Note:** To attach a VESA mount, please see "Detaching the monitor stand" on page 2-12.

\*: Depending on many factors such as the processing capability of peripheral devices, file attributes, and other factors related to system configuration and operating environments, the actual transfer rate using the various USB connectors on this device will vary and is typically slower than the data rates as defined by the respective USB specifications: - 5 Gbit/s for USB 3.1 Gen 1; 10 Gbit/s for USB 3.1 Gen 2 & 20 Gbit/s for USB 3.2.

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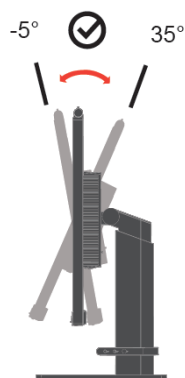
## Product overview

This section will provide information on adjusting monitor positions, setting user controls, and using the cable lock slot.

### Types of adjustments

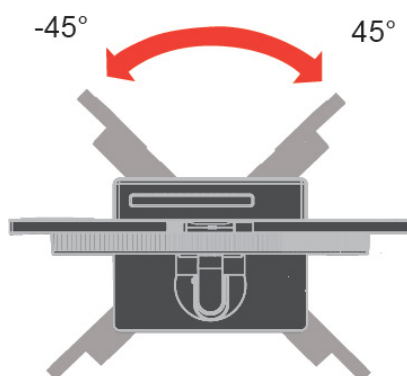
#### Tilt

Please see the illustration below for an example of the tilt range.



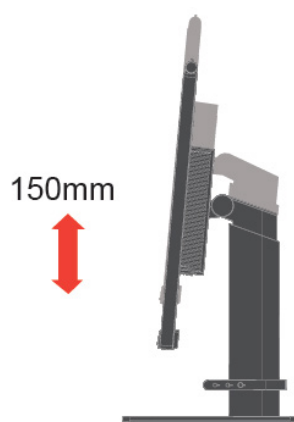
#### Swivel

With the built-in pedestal, you can tilt and swivel the monitor for the most comfortable viewing angle.



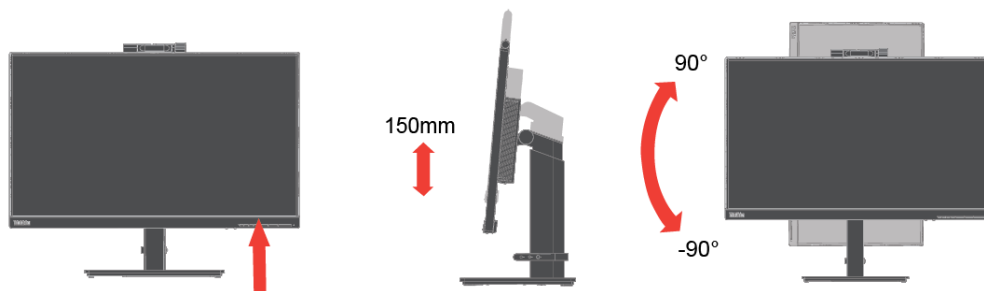
#### Height Adjustment

After pressing the top of the monitor, you can adjust the height of the monitor.



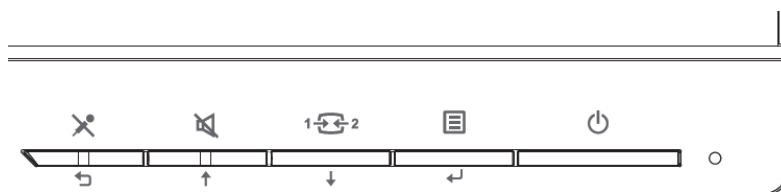
## Monitor Pivot

- Adjust the monitor height before rotating the monitor screen. (Make sure that the monitor screen ascent to its highest point and it inclines backward at 35°)
- Then rotate clockwise or anticlockwise until the monitor stops at 90°.



## User controls

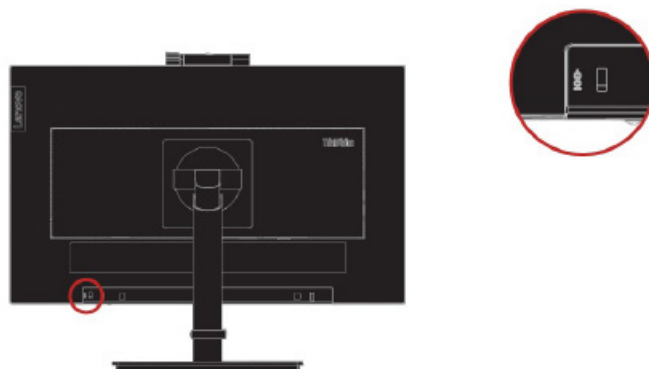
Your monitor has controls on the front which are used to adjust the display.



For information on how to use these controls, please see “Adjusting your monitor image” on page 2-6.

## Cable lock slot

Your monitor is equipped with a cable lock slot located on the rear of your monitor. Please follow the instructions that came with the cable lock to attach it.





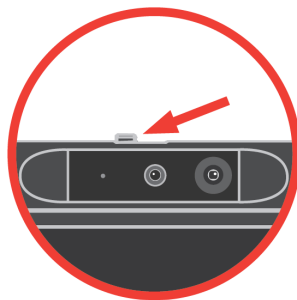
## IR-Camera

Your monitor has embedded integrated IR Camera Module; it can be used as a normal web-camera.

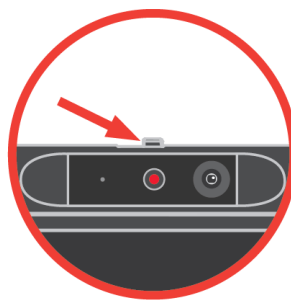


Slide the camera shutter open or close to enable/disable the camera.

a. Slide to open.



b. Slide to close.



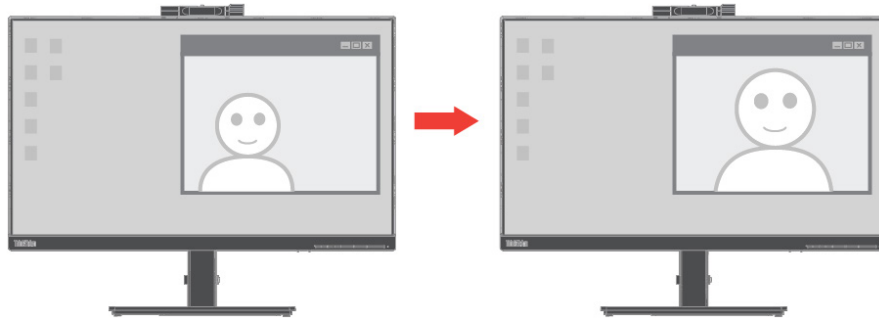
### Windows hello

After setting up the “Windows hello” application, you can login your Window 10 operating system with the function of face-recognition.

**Note:** To set up “windows hello”, please see “Windows Hello setup (Windows 10 Only)” on page 1-10.

### Webcam face tracking function

The camera will perform face tracking with Win10, after RS2 version when install special driver, webcam could search face with windows 10 ROI, then enlarge and centre the face.



#### Note:

1. Your NB/PC OS should be Win 10 and after RS2 version, don't support for Win 7 or Win10 older than RS2 version. Propose to upgrade your windows OS to latest to keep this function stable.
2. To install special driver on NB/PC, you must download it from Lenovo website <https://pcsupport.lenovo.com/us/en/downloads/DS544026> and follow the instructions on page 3-7  
"Manually installing the Face tracking driver in Windows 10" for details.
3. Check your CPU of NB/PC to keep high efficiency (Please use adapter instead of internal Battery when using NB).
4. Sometimes you might find the face can be enlarged, not be centralized when your face is in the edge of the image that camera captured, please move your face close to centre.
5. If face tracking function is updated, camera driver will be automatically updated via system's Windows update when NB/PC is connected to network. Don't shut down when you run Windows update and please follow Windows update operation guide.

Please refer to page 2-7 "Using the On-Screen Display (OSD) controls" to know how to Enable/Disable Face Tracking function.

### Video/Audio Icon on/off

Connect USB cable from PC/NB to Monitor, set Advanced Settings->Video/Audio Icon on, Video/Audio ICON will display on left bottom when Camera / Microphone is enable.

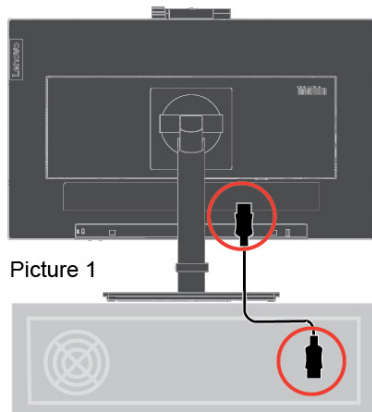


#### Note:

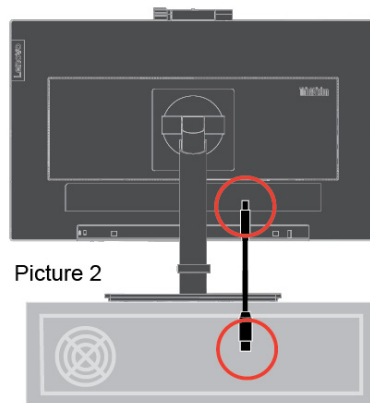
If USB cable is disconnected, Video/Audio ICON in OSD Advanced Settings will gray out. You can't select this function.

## Speaker

Your monitor has embedded a pair of speakers with 3W, and it can support DP or HDMI audio output and USB audio output. The USB cable need plug in when you use USB audio channel (**picture2**). DP or HDMI audio output doesn't need USB cable but DP or HDMI cable (**picture 1**).

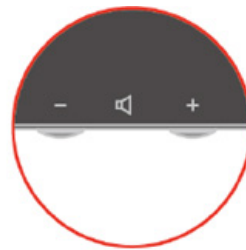


Picture 1



Picture 2

Use Volume control button to adjust volume.



**Note:** To prevent possible hearing damage, do not listen at high volume levels for long periods.  
Warning for excessive sound pressure from earphones and headphones.  
Excessive sound pressure from earphones and headphones can cause hearing loss.  
Adjustment of the equalizer to maximum increases the earphones and headphones output voltage and therefore the sound pressure level.

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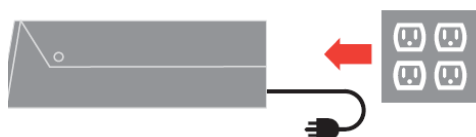
# Setting up your monitor

This section provides information to help you set up your monitor.

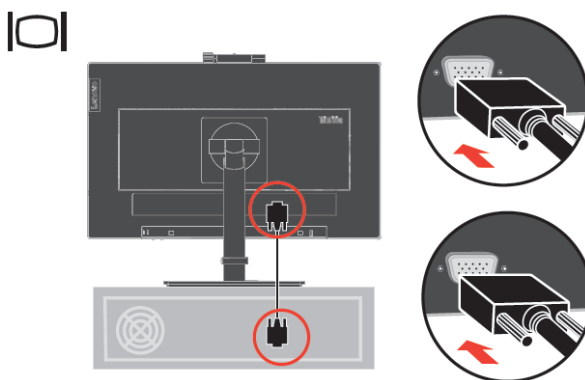
## Connecting and turning on your monitor

**Note:** Be sure to read the Safety Information located in the Flyer before carrying out this procedure.

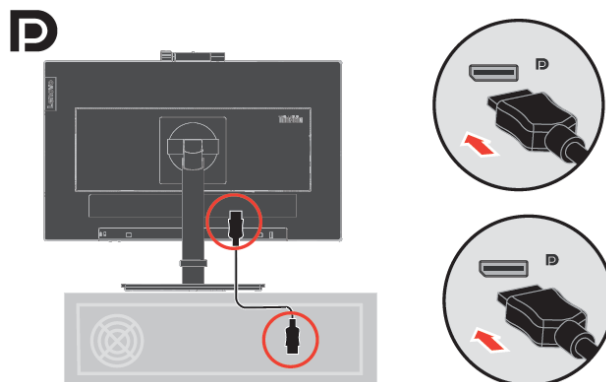
1. Power off your computer and all attached devices, and unplug the computer power cord.



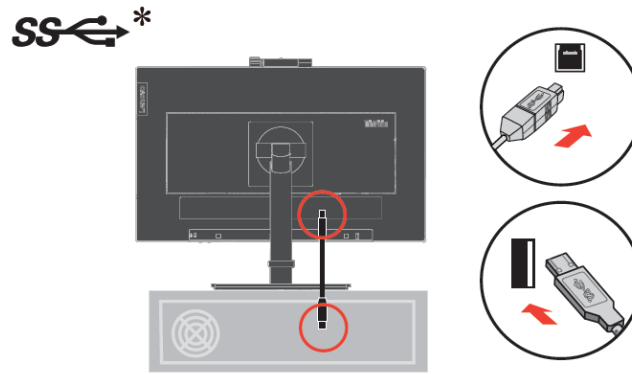
2. Connect the analog signal cable to the D-SUB connector of the monitor and the other end on the back of the computer.



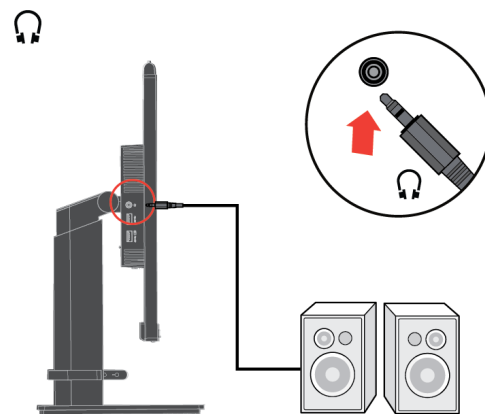
3. Connect one end of the DP cable to the DP connector on the back of the computer, and the other end to the DP connector on the monitor. Lenovo recommends that customers who require to use the DisplayPort input on their monitor purchase the "Lenovo DisplayPort to DisplayPort cable 0A36537". For more information, go to the following: [www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)



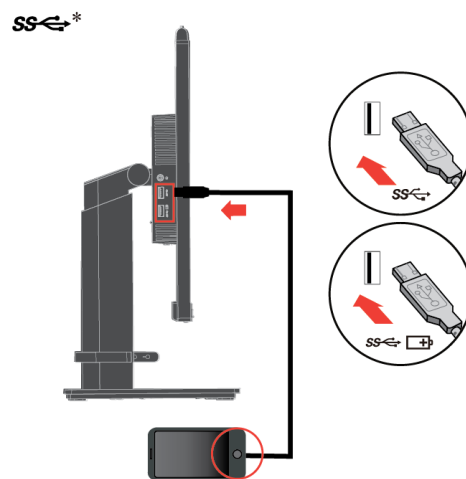
4. Connect one end of the USB 3.0 cable to the USB connector on the back of the computer, and the other end to the upstream USB connector on the monitor.



5. Connect the speaker's audio cable and audio jack of monitor to transfer audio source from DP, HDMI, or USB.



6. Connect one end of the USB cable to the USB downstream terminal of the monitor, and connect the other end of the USB cable to an appropriate USB port on your device.

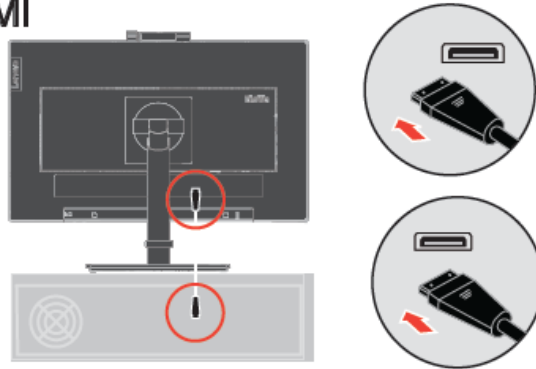


**Note:** The USB Battery Charging port (with battery symbol) specification 1.2 output 5Vdc/1.5A (typical), 2A (max) and the other standard USB Output 5Vdc/900mA. The USB downstream port does not provide power while the monitor is switched off.

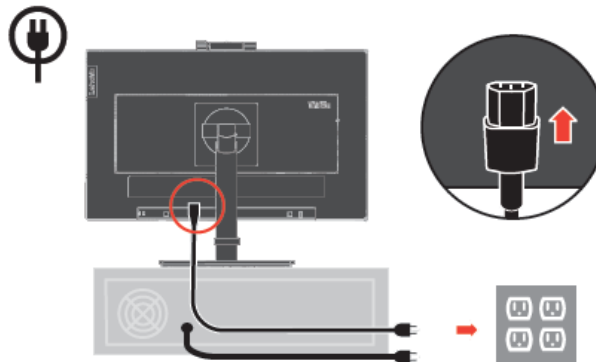
If there are any \* tag, you can consult the comments on page 1-1

7. Connect one end of the HDMI cable to the HDMI connector on the back of the computer, and the other end to the HDMI connector on the monitor. Lenovo recommends that customers who require to use the HDMI input on their monitor purchase the “Lenovo HDMI to HDMI cableOB47070”.For more information, go to the following:  
[www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)

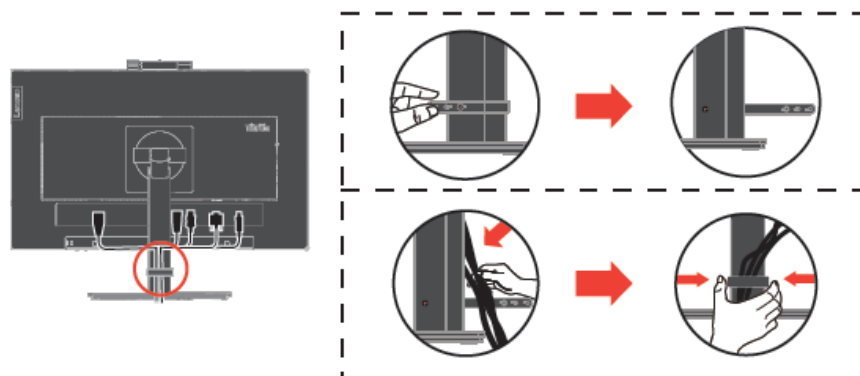
## HDMI



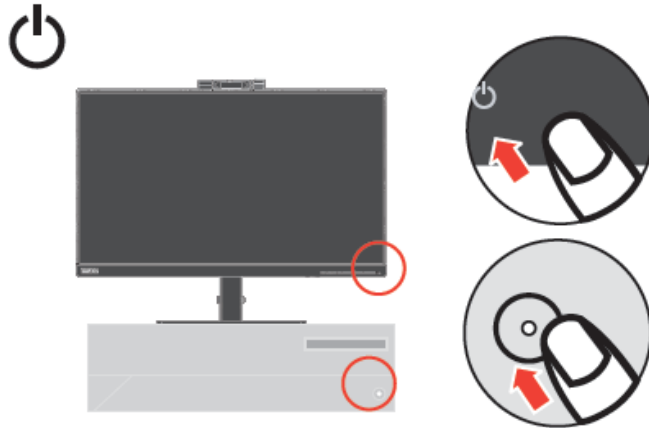
8. Plug the monitor power cord and the computer cord into grounded electrical outlets.  
**Note:** A certified power supply cord has to be used with this equipment. The relevant national installation and/or equipment regulations shall be considered. A certified power supply cord not lighter than ordinary polyvinyl chloride flexible cord according to IEC 60227 (designation H05VV-F 3G 0.75mm<sup>2</sup> or H05VVH2-F2 3G 0.75mm<sup>2</sup>) shall be used. Alternative a flexible cord be of synthetic rubber according to IEC 60245 (designation H05RR-F 3G 0.75mm<sup>2</sup>) shall be used.



9. Assembled Line Cleaner as shown below.



10. Power on the monitor and the computer.

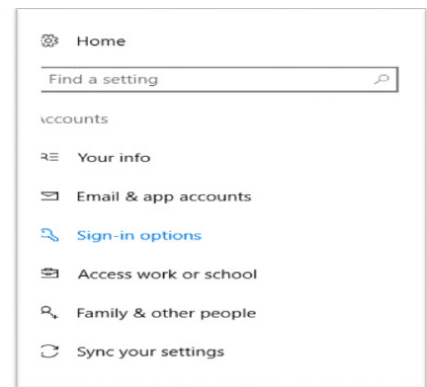
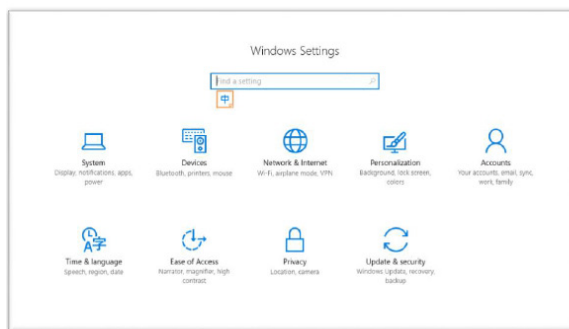


11. To install the monitor driver, you must download it from Lenovo website, ([https://pcsupport.lenovo.com/solutions/t22v\\_20](https://pcsupport.lenovo.com/solutions/t22v_20)) and follow the instructions on page 3-5.

## Windows Hello setup (Windows 10 Only)

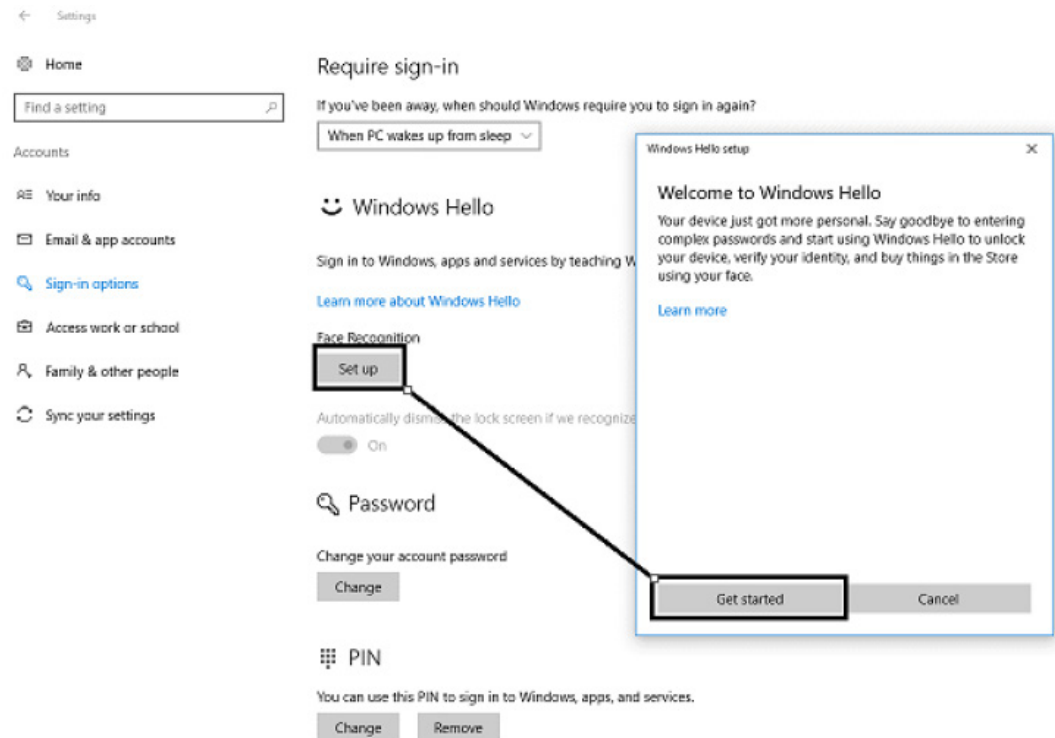
**Note:** To set up “Windows Hello”, do the following:

1. Press “Windows” + “I” and then click Accounts, choose “Sign-in options”.

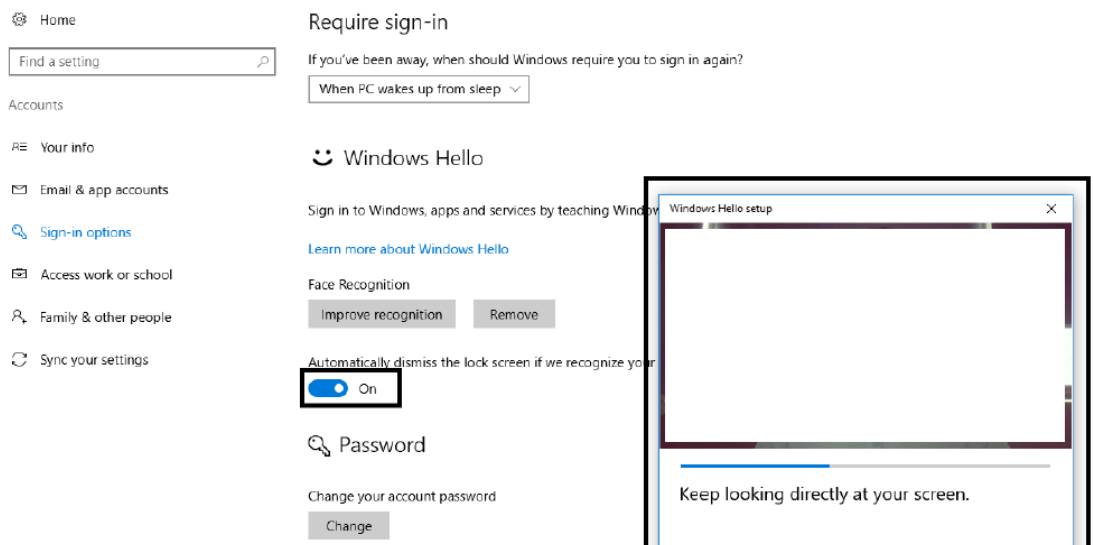


2. Setup PIN number.

3. Establish **face-recognition** by clicking **Set up, Get started**.



4. Scanning your face information and enable face-recognition to unlock your computer.



## Registering your option

Thank you for purchasing this Lenovo® product. Please take a few moments to register your product and provide us with information that will help Lenovo to better serve you in the future. Your feedback is valuable to us in developing products and services that are important to you, as well as in developing better ways to communicate with you. Register your option on the following Web site:

<http://www.lenovo.com/register>

Lenovo will send you information and updates on your registered product unless you indicate on the Web site questionnaire that you do not want to receive further information.



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## Chapter 2 Adjusting and using your monitor

This section will give you information on adjusting and using your monitor.

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### Comfort and accessibility

Good ergonomic practice is important to get the most from your personal computer and to avoid discomfort. Arrange your workplace and the equipment you use to suit your individual needs and the kind of work that you perform. In addition, use healthy work habits to maximize your performance and comfort while using your computer.

---

### Arranging your work area

Use a work surface of appropriate height and available working area to allow you to work in comfort.

Organize your work area to match the way you use materials and equipment. Keep your work area clean and clear for the materials that you typically use and place the items that you use most frequently, such as the computer mouse or telephone, within the easiest reach.

Equipment layout and setup play a large role in your working posture. The following topics describe how to optimize equipment setup to achieve and maintain good working posture.

#### Positioning and viewing your monitor

Position and adjust your computer monitor for comfortable viewing by considering the following items:

- **Viewing distance:** Optimal viewing distances for monitors range from approximately 510mm to 760mm (20 in to 30 in) and can vary depending on ambient light and time of day. You can achieve different viewing distances by repositioning your monitor or by modifying your posture or chair position. Use a viewing distance that is most comfortable for you.
- **Monitor height:** Position the monitor so your head and neck are in a comfortable and neutral (vertical, or upright) position. If your monitor does not have height adjustments, you might have to place books or other sturdy objects under the base of the monitor to achieve the desired height. A general guideline is to position the monitor such that the top of the screen is at or slightly below your eye-height when you are comfortably seated. However, be sure to optimize your monitor height so the line of site between your eyes and the centre of the monitor suits your preferences for visual distance and comfortable viewing when your eye muscles are in a relaxed state.
- **Tilt :** Adjust the tilt of your monitor to optimize the appearance of the screen content and to accommodate your preferred head and neck posture.
- **General location:** Position your monitor to avoid glare or reflections on the screen from overhead lighting or nearby windows.

The following are some other tips for comfortable viewing of your monitor:

- Use adequate lighting for the type of work you are performing.
- Use the monitor brightness, contrast, and image adjustment controls, if equipped, to optimize the image on your screen to meet your visual preferences.
- Keep your monitor screen clean so you can focus on the screen's contents.

Any concentrated and sustained visual activity can be tiring for your eyes. Be sure to periodically look away from your monitor screen and focus on a far object to allow your eye muscles to relax. If you have questions on eye fatigue or visual discomfort, consult a vision care specialist for advice.

---

## Health Administration

Prolong exposure to computer screens may cause temporary visual fatigue. Factors including working environment, working habit and posture, screen flicker and blue light contribute to this condition. To minimize visual fatigue certain adjustments can be made on the work stations or using suitable computer screens with features that alleviate eye strain.

### Environment

Visual fatigue is affected by the working environment. Glare reductions and appropriate lighting situations help minimize this condition.

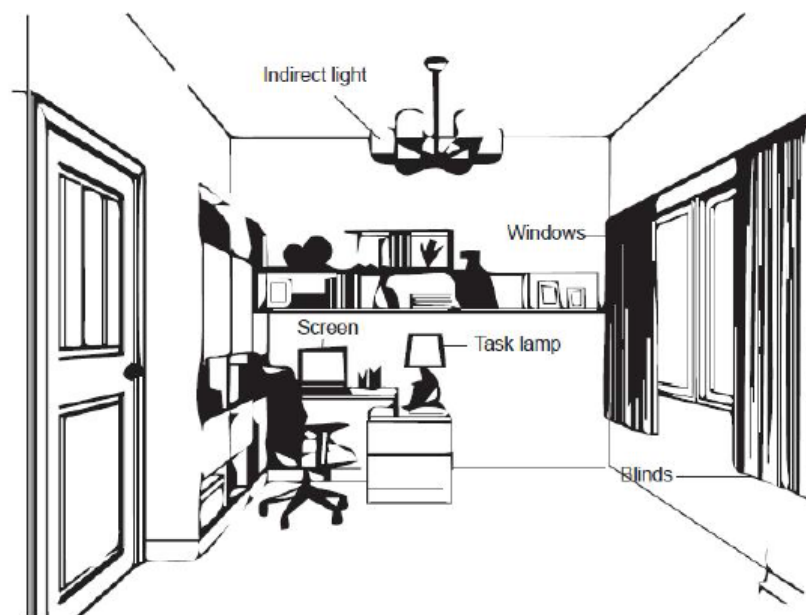
- Glare reduction

Glare can be reduced by

- a) Changing position of any light source that is causing the glare.
- b) Fitting the light sources with appropriate diffusers or lampshade.
- c) Using curtains or blind on windows to minimize glare from direct sunlight.
- d) Adjusting monitor position to be perpendicular to the source of light or windows.
- e) Using an anti-glare screen - ThinkVision monitors have anti-glare surface treatment that scatters light for a reflection-free work usage.

- Lighting

Adequate lighting is necessary to avoid glare and eye fatigue. Excessive or insufficient lighting makes the display on screen harder to see. Generally, lighting level should not exceed 750 lux and levels ranging from 300 to 500 lux are most appropriate for computer desk work. Recommended lighting arrangement includes positioning work stations away from direct sunlight or using overhead lighting with baffles or louvers that reduces glare.



### Working Habits

Long exposures to computer screens may cause eye strain. Symptoms include headache, burning eyes, blurred vision and discomfort. To minimize eye strain, computer users can adjust working habits to let their eyes relax and recover.

- Break Times

Computer users should take some time away from the screen especially if working for prolonged hours. Generally, it is recommended to take short breaks (5 – 15 mins) after 1 – 2 hours of continuous computer works. Taking short and frequent breaks is more advised than longer breaks.

- Looking at Distant Objects

Users often blink less when in front of monitor screen. To minimize eye strain and dryness, users should rest the eye periodically by focusing on objects that are far away.

- Eye and Neck Exercises

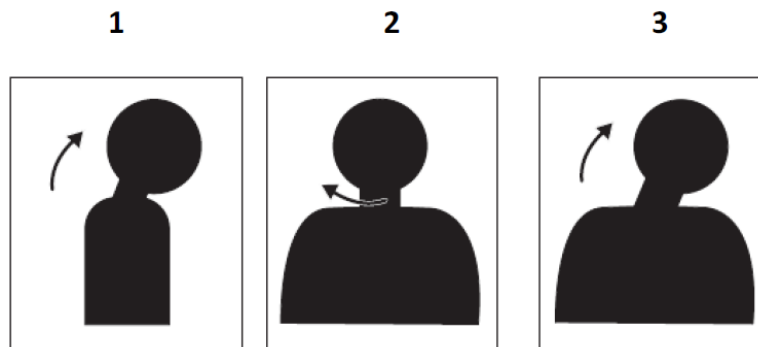
Certain exercise reduces eye strain and prevent early onset of musculo-skeletal disorders. It is recommended to repeat these exercises often. However, should symptoms persists it is recommended to consult a physician.

Exercises for the eye:

1. Alternate looking up and looking down while keeping the body and head upright.
2. Slowly roll your eyes to look to the left and right.
3. Roll eyes to look at objects on the upper right corner and then on lower right. Do same thing to look at objects on the upper left and lower left.

Exercises for the neck:

1. Relax arm at the side. Bend head forward to slightly stretch the neck. Hold for 5 seconds.
2. Relax arm at the side. Turn head to the right. Hold for 5 seconds. Then turn head to the left.
3. Relax arm at the side. Swing head to the left. Hold for 5 seconds. Then swing head to the right.



## Working Posture

Appropriate working position helps minimize eye discomfort. Seating position and ideal placement of monitor are essential for a comfortable working experience.

### • Seating Position

Placing the monitor too far or too close may lead to eye strain. Far viewing distance causes users to lean forward to see small texts, which strain the eyes and torso. Close viewing distance, on the other hand, strains the eye resulting from exerting more effort to focus and also causes the user to sit in awkward body posture (i.e. tilting the head, typing with outstretched arms, etc.)

Recommended viewing distance between the eye and the monitor screen is 1.5 x the diagonal of the screen. Solutions in meeting this required distance in cramped office situations include pulling desk away from wall or divider to make room for monitor, using flat panel or compact displays placing the monitor in the desk corner, or placing the keyboard in an adjustable drawer to create a deeper working surface.

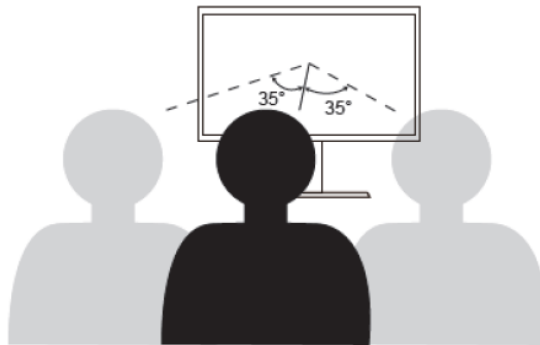
1.5 times of screen diagonal



ThinkVision monitors are design to maximize work space (e.g. having thin profiles, compatible for ThinkCentre Tiny back mount, practical cable management, etc).

- Viewing Angle

Neck fatigue and pain may result from prolong turning of the head to see objects on the monitor screen. To minimize this, position the monitor directly in front so the head, neck and torso face forward to the screen. It is recommended that monitor should not be more than 35 degrees to the right or left of the head.



Monitors should also not be placed too high or too low as this contributes to awkward posture which results to muscle fatigue.

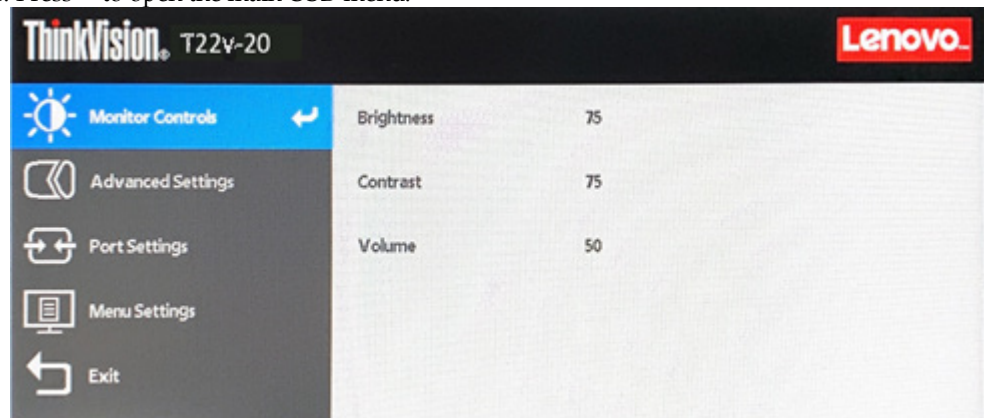
## Reduce Flicker

Monitor flickers refer to repeated changes in monitor light intensity. It is caused by several factors including but not limited to voltage fluctuations. Reducing flicker minimizes eye strain and headaches. ThinkVision monitors allow users to use high frequency display modes that can effectively reduce flicker.

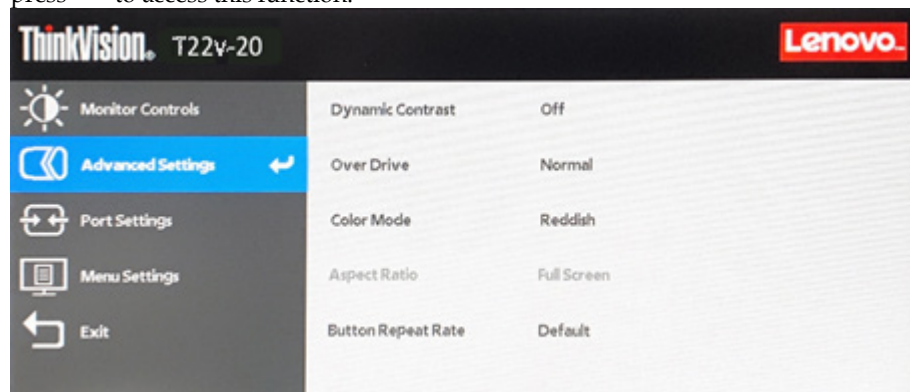
## Low Blue Light

Concerns on blue light affecting eye health have risen over the years. Blue light have wavelength between 300 nm to 500 nm. The monitors have a factory setting that reduces blue light emissions. Users can enable low blue light mode on these monitors from the OSD settings.

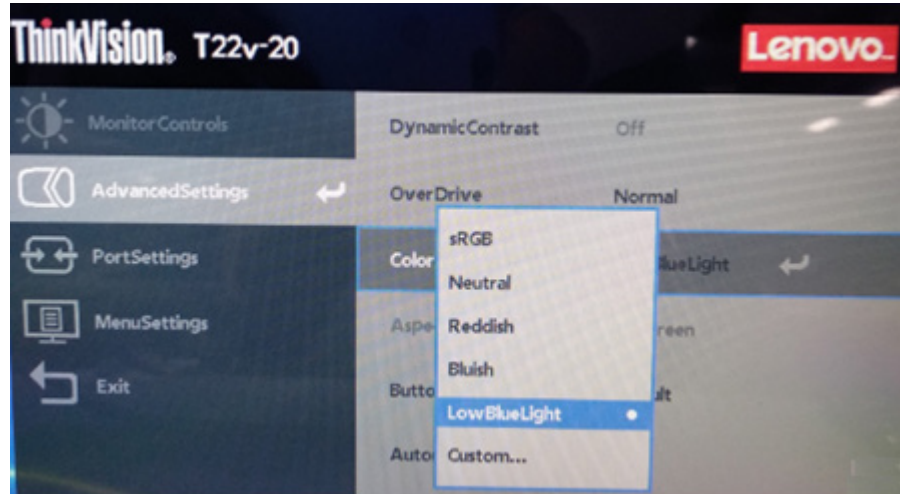
1. Press  to open the main OSD menu.



2. Use  or  to move among the icons. Select icon  (Advanced Settings) and press  to access this function.



3. Use  or  move among the items. Select Color Mode and press  to access this function.



4. Select Low blue Light and press  to enable Low blue Light.

---

## Accessibility information

Lenovo is committed to providing greater access to information and technology to people with disabilities. With assistive technologies, users can access information in the way most appropriate to their disability. Some of these technologies are already provided in your operating system; others can be purchased through vendors or accessed at:

[https://lenovo.ssbartgroup.com/lenovo/request\\_vpat.php](https://lenovo.ssbartgroup.com/lenovo/request_vpat.php)

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## Adjusting your monitor image

This section describes the user control features used to adjust your monitor image.

### Using the direct access controls

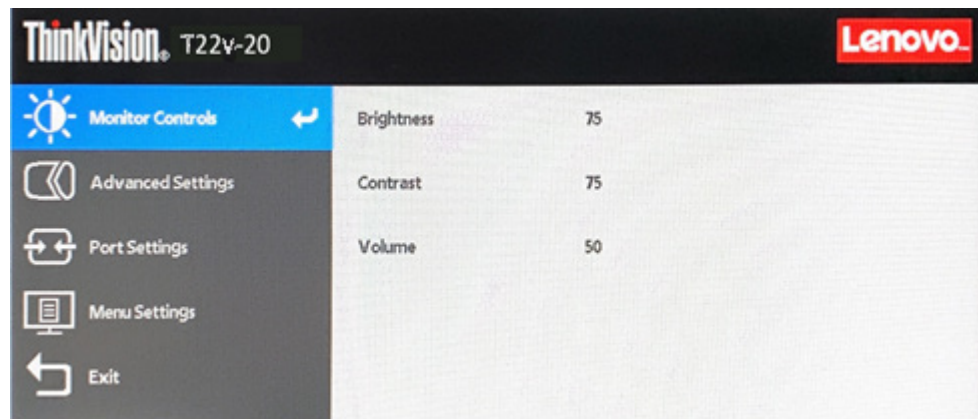
The direct access controls can be used when the On Screen Display (OSD) is not displayed.

*Table 2-1 Direct access controls*

| Icon                                                                              | Control         | Description                                        |
|-----------------------------------------------------------------------------------|-----------------|----------------------------------------------------|
|  | Microphone Mute | Use the Microphone Mute button to mute microphone. |
|  | Audio Mute      | Use the Mute button to mute audio.                 |
|  | Input change    | Switches the video input source.                   |
|  | Main menu       | Open main OSD menu                                 |

## Using the On-Screen Display (OSD) controls

The settings adjustable with the user controls are viewed through the On-Screen Display (OSD), as shown below.



To use the controls:

1. Press  to open the main OSD menu.
2. Use  or  to move among the icons. Select an icon and press  to access that function. If there is a sub-menu, you can move between options using  or , then press  to select that function. Use  or  to make adjustments. Press  to save.
3. Press  to move backwards through the sub-menus and exit from the OSD.
4. If the monitor connects USB cable with PC/NB and the camera is enable, press and hold  for 3 seconds to enable/disable Face Tracking function.
5. If monitor is not connected to a USB cable with PC/NB, press and hold  for 10 seconds to lock the OSD. This will prevent accidental adjustments to the OSD. Press and hold  for 10 seconds to unlock the OSD and allow adjustments to the OSD.
6. Enables DDC/CI by default. Use OSD Exit Key, press and hold the  buttons for 10 seconds to disable/enable DDC/CI function. The words "DDC/CI Disable/DDC/CI/Enable" shows on the screen.
7. The ENERGY STAR option resets all user settings to default values so that the monitor can meet the requirements of Energy Star.



Energy Star is an energy saving program for consumer electronics led by the U.S. government. It was launched in 1992 by EPA and DOE to reduce energy consumption and greenhouse gas emissions. Energy Star logo is a symbol of energy conservation and environmental protection. It improves the concept of energy efficiency of consumers and manufacturers, and effectively guides the market.

The regulation of Energy Star improves energy efficiency and reduces air pollution by using more energy-efficient equipment in homes, offices and factories. One way to achieve this goal is to use management to reduce energy consumption when products are not in use.

The default settings for monitors conform to Energy Star certification. Any changes by users for more features and functionalities may increase power consumption, which will exceed the limitation of Energy Star's standard. If the user changes the options related to energy efficiency when using, such as brightness, color mode, etc., select All Reset Factory or choose the Energy Star option, the power consumption will be restored to the energy efficiency with Energy Star standard.

For more information, please refer to ([www.energystar.gov/products](http://www.energystar.gov/products)). All products of Energy Star will be posted online and can be accessed directly by governments, public institutions and consumers.

Table. 2-2 OSD functions

| OSD Icon on Main Menu                                                                                 | Submenu            | Description                                                                                                                                                                                                                                                                                                                                        | Controls and Adjustments |
|-------------------------------------------------------------------------------------------------------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
|  Monitor Controls    | Brightness         | Adjusts overall brightness                                                                                                                                                                                                                                                                                                                         | ↑<br>↓                   |
|                                                                                                       | Contrast           | Adjusts difference between light and dark areas.                                                                                                                                                                                                                                                                                                   | ↑<br>↓                   |
|                                                                                                       | Volume             | Adjust the volume level.                                                                                                                                                                                                                                                                                                                           | ↑<br>↓                   |
|  Advanced Settings | Dynamic Contrast   | Enable dynamic contrast ratio.<br>• Off<br>• On                                                                                                                                                                                                                                                                                                    | ↑<br>↓                   |
|                                                                                                       | Over Drive         | • Off<br>• Normal<br>• Extreme                                                                                                                                                                                                                                                                                                                     | ↑<br>↓                   |
|                                                                                                       | Color Mode         | Adjusts intensity of red, green, and blue.<br>• sRGB<br>• Neutral<br>• Reddish<br>• Bluish<br>• Low Blue Light<br>• Custom...<br>Red: Increases or decreases the saturation of 'red' in the image.<br>Green: Increases or decreases the saturation of 'green' in the image.<br>Blue: Increases or decreases the saturation of 'blue' in the image. | ↑<br>↓                   |
|                                                                                                       | Aspect Ratio       | Selects type of scaled image.<br>• Full Screen: Expand image to full screen.<br>• Original AR: Ratio with input signal.                                                                                                                                                                                                                            | ↑<br>↓                   |
|                                                                                                       | Button Repeat Rate | • Off<br>• Default<br>• Slow                                                                                                                                                                                                                                                                                                                       | ↑<br>↓                   |
|                                                                                                       | Video/Audio Icon   | Enable Camera / Microphone Icon<br>• Off<br>• On                                                                                                                                                                                                                                                                                                   | ↑<br>↓                   |
|                                                                                                       | Automatic          | Automatically optimizes the image.                                                                                                                                                                                                                                                                                                                 |                          |
|                                                                                                       | Image Setup        | • Clock<br>• Phase<br>• Horizontal Position: Moves the image left or right.<br>• Vertical Position: Moves the image up or Down                                                                                                                                                                                                                     | ↑<br>↓                   |



| OSD Icon on Main Menu                                                                           | Submenu         | Description                                                                                                                                                                                                                                                | Controls and Adjustments                                                              |
|-------------------------------------------------------------------------------------------------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|  Port Setting  | Input Signal    | This monitor can accept video signals through three different connectors. Select digital among OSD controls when you use VGA/HDMI/DP connector. <ul style="list-style-type: none"> <li>• VGA</li> <li>• HDMI</li> <li>• DP</li> </ul>                      |    |
|                                                                                                 | DP Select       | <ul style="list-style-type: none"> <li>• DP1.1</li> <li>• DP1.2</li> </ul>                                                                                                                                                                                 |    |
|  Menu Setting | Language        | Select OSD Language.<br><b>Note:</b> The language chosen only affects the language of the OSD. It has no effect on any software running on the computer.                                                                                                   |    |
|                                                                                                 | Menu Time Out   | Sets the length of time the OSD will remain active after the last time a button is pressed.                                                                                                                                                                |    |
|                                                                                                 | Menu Horizontal | Changes the horizontal position of the OSD.                                                                                                                                                                                                                |    |
|                                                                                                 | Menu Vertical   | Changes the vertical position of the OSD.                                                                                                                                                                                                                  |  |
|                                                                                                 | Transparency    | choose the transparency of OSD                                                                                                                                                                                                                             |  |
|                                                                                                 | Factory Reset   | Resets monitor to the original factory settings. <ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> </ul> The ENERGY STAR Logo means resets all user settings to default values so that the monitor can meet the requirements of Energy Star. |  |
|  Exit        | /               | Exit OSD menu.                                                                                                                                                                                                                                             | /                                                                                     |

\*Low Blue Light Mode is reducing the blue light content.

\*The use of Extreme Mode (response time) may result in reduced display quality when fast moving video graphics are displayed.

Users should check Extreme Mode (response time) to verify if it is compatible with any applications they would like to use it with.

---

## Selecting a supported display mode

The display mode the monitor uses is controlled by the computer. Therefore, refer to your computer documentation for details on how to change display modes.

The image size, position and shape might change when the display mode changes. This is normal and the image can be readjusted using automatic image setup and the image controls.

Unlike CRT monitors, which require a high refresh rate to minimize flicker, LCD or Flat Panel technology is inherently flicker-free.

Note: If your system has previously been used with a CRT monitor and is currently configured to a display mode outside the range of this monitor, you may need to re-attach the CRT monitor temporarily until you have re-configured the system; preferably to 1920x1080 @ 60Hz, which is the Native Resolution Display mode.

The display modes shown below have been optimized at the factory.

*Table 2-3. Factory set display modes*

| Addressability | Refresh rate                            |
|----------------|-----------------------------------------|
| PAL VGA        | 50Hz                                    |
| 640x350        | 70Hz                                    |
| 640x480        | 60Hz,72Hz,75Hz                          |
| 700x570        | 50Hz                                    |
| 720x400        | 70Hz                                    |
| 800x600        | 56Hz,60Hz,72Hz,75Hz                     |
| 832x624        | 75Hz                                    |
| 1024x768       | 60Hz,70Hz,75Hz                          |
| 1152x864       | 75Hz                                    |
| 1280x1024      | 60Hz,70Hz,75Hz                          |
| 1366x768       | 60Hz                                    |
| 1440x900       | 60Hz, reduced 60Hz                      |
| 1600x900       | 60Hz,75Hz                               |
| 1680x1050      | 60Hz, reduced 60Hz                      |
| 1920x1080      | 60Hz, reduced 75Hz(for HDMI & DP input) |

---

## Image rotation

Before rotating the monitor, you should set-up your computer to rotate the image. Rotating the image may require special rotation software or you may find that your computer is preloaded with video graphic drivers that allows image rotation. Check the Graphic Properties setting on your computer to see if this feature is available. Try these steps to check if image rotation is available on your computer.

- 1.Right-click on the desktop and click Properties.
2. Select the Settings tab and click Advanced.
3. If you have ATI, select the Rotation tab and set the preferred rotation. If you have nVidia, click the nVidia tab, in the left-hand column select NV Rotate, and then select the preferred rotation. If you have Intel, select the Intel graphics tab, click Graphic Properties, select the Rotation tab, and then set the preferred rotation.

Check with the manufacturer of your computer to see if graphic drivers with image rotation can be downloaded from their support website.

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## Audio description

If your Operation System(OS) is XP, for the XP limitation, 2 phenomena will be happened:

- A) The USB audio is recognized as a speaker phone by PC, Speaker volume control icon will be disappeared when you plug in the USB cable.
- B) Because PC doesn't set the USB audio as the prior audio output automatically when you first plug in the USB cable, and the monitor will not audio output.

You must setup it manually once, please refer to below step:

- 1> Open your "control panel" from the start.
- 2> Then open the "sounds and audio devices".
- 3> Select the "ThinkVision T22v Wide Monitor for USB-Audio" as default audio output.
- 4> Apply it.

---

## Understanding power management

Power management is invoked when the computer recognizes that you have not using your mouse or keyboard for a user-definable period. There are several states as described in the table below.

For optimal performance, switch off your monitor at the end of each working day, or whenever you expect to leave it unused for long periods during the day.

*Table2-4.Power indicator*

| State               | Power Indicator | Screen | Restoring Operation                                                                                                                               | Compliance     |
|---------------------|-----------------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| On                  | Steady white    | Normal |                                                                                                                                                   |                |
| Standby/<br>Suspend | Steady amber    | Blank  | Press a key or move the mouse.<br>There may be a slight delay reappears.<br>Note: Standby also occurs if there is no image output to the monitor. | ENERGY<br>STAR |
| Off                 | Off             | Off    | Press power key to switch on<br>There may be a slight delay before the image reappears.                                                           | ENERGY<br>STAR |

| Energy Star      | Power consumption |
|------------------|-------------------|
| P <sub>on</sub>  | 10.86 W           |
| E <sub>IEC</sub> | 34.44KWh          |

\*\* Maximum power consumption with max luminance.

This document is informational only and reflects laboratory performance. Your product may perform differently, depending on the software, components and peripherals you ordered and shall have no obligation to update such information. Accordingly, the customer should not rely upon this information in making decisions about electrical tolerances or otherwise. No warranty as to accuracy or completeness is expressed or implied.

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## Caring for your monitor

Be sure to turn off the power before you perform any maintenance on the monitor.

**Do not :**

- Apply water or liquid directly to your monitor.
- Use solvents or abrasives.
- Use flammable cleaning materials to clean your monitor or any other electrical equipment.
- Touch the screen area of your monitor with sharp or abrasive items. This type of contact may cause permanent damage to your screen.
- Use any cleaner which contains an anti-static solution or similar additives. This may harm the coating of the screen area.

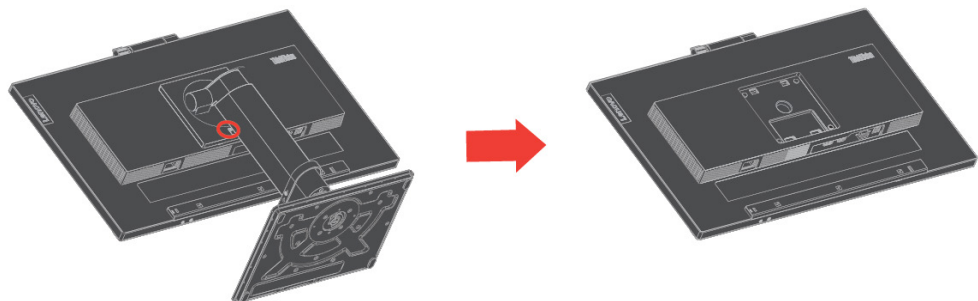
**Do :**

- Lightly dampen a soft cloth with water and use this to gently wipe the covers and the screen.
- Remove grease or finger marks with a damp cloth and a little mild detergent.

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## Detaching the monitor stand

After placing the monitor face down on a clean and soft surface, push the hook of the stand and lift the stand up to remove it from the monitor .



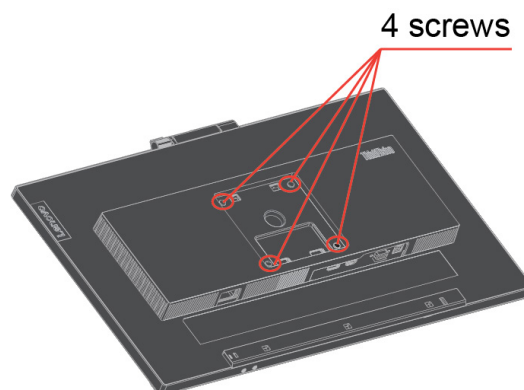
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## Wall Mounting (Optional)

Refer to the instructions that come with the VESA compatible base mounting kit.

1. Place the monitor face down on a non-abrasive surface on stable flat table.
2. Remove the stand.
3. Attach the mounting bracket from the wall mounting kit to the monitor.
4. Mount the monitor on the wall by following the instructions that come with the base mounting kit.

**Note:** For use only with UL and GS Listed Wall Mount Bracket with minimum weight/load bearing capacity of 6.00 kg. In order to fulfil TCO Certification for this wall mounting option, shielded power cable is mandatory to be used. Attach the mounting bracket from the VESA compatible wall mounting kit(100mm x100mm distance), the type of VESA mounting screw is M4 x 10 mm.



## Chapter 3 Reference information

This section contains monitor specifications, instructions to manually install the monitor driver, troubleshooting information, and service information.

### Monitor specifications

Table 3-1. Monitor specifications for type-model 61FB-MAR6-WW

|                                                                                                         |                            |                                                      |
|---------------------------------------------------------------------------------------------------------|----------------------------|------------------------------------------------------|
| Dimensions                                                                                              | Height                     | 562.9mm (22.16 in.)Max                               |
|                                                                                                         | Depth                      | 205 mm (8.07 in.)                                    |
|                                                                                                         | Width                      | 489.3 mm (21.25 in.)                                 |
| Stand                                                                                                   | Tilt range                 | Range: -5° / +35°                                    |
|                                                                                                         | Swivel                     | Range: -45° / +45°                                   |
|                                                                                                         | Lift                       | Range: 150mm                                         |
|                                                                                                         | Pivot                      | Yes (clockwise 90 degrees& anticlockwise 90 degrees) |
| VESA mount                                                                                              | Supported (GS&UL Approved) | 100 x100mm (3.94 in.x3.94 in.)                       |
| Image                                                                                                   | Viewable image size        | 546 mm (21.5 in.)                                    |
|                                                                                                         | Maximum height             | 267.79 mm (10.54 in.)                                |
|                                                                                                         | Maximum width              | 476.06 mm (18.74 in.)                                |
|                                                                                                         | Pixel pitch                | 0.248mm (0.0098 in.) (V)                             |
|                                                                                                         | Response time              | Normal: 6 ms<br>Extreme: 4 ms                        |
| Power input                                                                                             | Supply voltage             | 100-240 VAC, 60/50 Hz                                |
|                                                                                                         | current                    | 1.5A                                                 |
| Power consumption<br>Note: Power consumption figures are for the monitor and the power supply combined. | Max Consumption            | <43W                                                 |
|                                                                                                         | Typical Consumption        | <13W                                                 |
|                                                                                                         | Standby/Suspend            | <0.3W                                                |
|                                                                                                         | Off                        | <0.3W                                                |
| Video input (VGA)                                                                                       | Input signal               | VGA                                                  |
|                                                                                                         | Horizontal addressability  | 1920 pixels (max)                                    |
|                                                                                                         | Vertical addressability    | 1080 lines (max)                                     |
|                                                                                                         | Clock frequency            | 180 MHz                                              |
| Video input (Digital)                                                                                   | Input signal               | DP                                                   |
|                                                                                                         | Horizontal addressability  | 1920 pixels (max)                                    |
|                                                                                                         | Vertical addressability    | 1080 lines (max)                                     |
|                                                                                                         | Clock frequency            | 180 MHz                                              |
| Video input (Digital)                                                                                   | Input signal               | HDMI                                                 |
|                                                                                                         | Horizontal addressability  | 1920 pixels (max)                                    |
|                                                                                                         | Vertical addressability    | 1080 lines (max)                                     |
|                                                                                                         | Clock frequency            | 180 MHz                                              |
| Speaker                                                                                                 | Rated power                | 3W                                                   |
|                                                                                                         | Impedance                  | 4ohm                                                 |
| Communications                                                                                          | VESA DDC                   | CI                                                   |
| Altitude Test                                                                                           | Operation                  | 5000m (16404 ft.)                                    |

|                                                                          |                      |                              |
|--------------------------------------------------------------------------|----------------------|------------------------------|
| Supported Display Modes<br>(VESA Standard modes<br>between noted ranges) | Horizontal frequency | 30 kHz – 85 kHz              |
|                                                                          | Vertical frequency   | 50 Hz – 76 Hz                |
|                                                                          | Native Resolution    | 1920 x 1080 at 60 Hz         |
| Temperature                                                              | Operating            | 0° to 40°C (32° to 104° F)   |
|                                                                          | Storage              | -20° to 60°C (-4° to 140° F) |
|                                                                          | Shipping             | -20° to 60°C (-4° to 140° F) |
| Humidity                                                                 | Operating            | 10% to 80%                   |
|                                                                          | Storage              | 5% to 95%                    |
|                                                                          | Shipping             | 5% to 95%                    |

# Troubleshooting

If you have a problem setting up or using your monitor, you might be able to solve it yourself. Before calling your dealer or Lenovo, try the suggested actions that are appropriate to your problem.

Table3-2. Troubleshooting

| Problem                                                                                       | Possible cause                                                                                                                                                                                 | Suggested action                                                                                                                                                                                                                                                                                                                                                                               | Reference                                            |
|-----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|
| The words " Out of Range" are shown on the screen, and the power indicator is flashing white. | The system is set to a display mode which is not supported by the monitor.                                                                                                                     | <ul style="list-style-type: none"><li>• If you are replacing an old monitor, reconnect it and adjust the display mode to within the specified range for your new monitor.</li><li>• If using a Windows system, restart the system in safe mode, then select a supported display mode for your computer.</li><li>• If these options do not work, contact the Customer Support Centre.</li></ul> | "Selecting a supported display mode" on page 2-10    |
| The image quality is unacceptable.                                                            | The video signal cable is not connected with the monitor or system completely.                                                                                                                 | Be sure the signal cable is firmly plugged into the system and monitor.                                                                                                                                                                                                                                                                                                                        | "Connecting and turning on your monitor" on page 1-7 |
| The image quality is unacceptable.                                                            | The color settings may be incorrect.                                                                                                                                                           | Select another colour setting from the OSD menu.                                                                                                                                                                                                                                                                                                                                               | "Adjusting your monitor image" on page 2-6           |
| The image quality is unacceptable.                                                            | The automatic image setup function was not performed.                                                                                                                                          | Perform automatic image setup.                                                                                                                                                                                                                                                                                                                                                                 | "Adjusting your monitor image" on page 2-6           |
| The power indicator is not lit and there is no image.                                         | <ul style="list-style-type: none"><li>• The monitor's power switch is not switched on.</li><li>• The power cord is loose or disconnected.</li><li>• There is no power at the outlet.</li></ul> | <ul style="list-style-type: none"><li>• Be sure the power cord is connected properly.</li><li>• Be sure the outlet has power.</li><li>• Power on the monitor.</li><li>• Try using another power cord.</li><li>• Try using another electrical outlet.</li></ul>                                                                                                                                 | "Connecting and turning on your monitor" on page 1-7 |

Table3-2. Troubleshooting(continued)

| Problem                                                                                                                                               | Possible cause                                                                                                                                                    | Suggested action                                                                                                                                                                        | Reference                                                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|
| Screen is blank and power indicator is steady amber or flashing white                                                                                 | The monitor is in Standby/Suspend mode                                                                                                                            | <ul style="list-style-type: none"> <li>● Press any key on the keyboard or move the mouse to restore operation.</li> <li>● Check the Power options settings on your computer.</li> </ul> | "Understanding power management" on page 2-11                 |
| The power indicator is white, but there is no image.                                                                                                  | The video signal cable is loose or disconnected from the system or monitor.                                                                                       | Be sure the video cable is connected with the system properly.                                                                                                                          | "Connecting and turning on your monitor" on page 1-7          |
| The power indicator is white, but there is no image.                                                                                                  | The monitor brightness and contrast are at the lowest setting.                                                                                                    | Adjust the brightness and contrast setting on the OSD menu.                                                                                                                             | "Adjusting your monitor image" on page 2-6                    |
| One or more of the pixels appear discoloured                                                                                                          | This is a characteristic of the LCD technology and is not an LCD defect.                                                                                          | If there are more than five pixels missing, contact the Customer Support Centre.                                                                                                        | Appendix A, "Service and Support" on page A-1                 |
| <ul style="list-style-type: none"> <li>● Fuzzy lines in text or a blurry image.</li> <li>● Horizontal or vertical lines through the image.</li> </ul> | <ul style="list-style-type: none"> <li>● Image setup has not been optimized</li> <li>● Your system Display Properties setting have not been optimized.</li> </ul> | Adjust the resolution settings on your system to match the native resolution for this monitor:<br>1920 x 1080 at 60 Hz.                                                                 | "Adjusting your monitor image" on page 2-6                    |
| <ul style="list-style-type: none"> <li>● Fuzzy lines in text or a blurry image.</li> <li>● Horizontal or vertical lines through the image.</li> </ul> | <ul style="list-style-type: none"> <li>● Image setup has not been optimized</li> <li>● Your system Display Properties setting have not been optimized.</li> </ul> | Perform automatic image setup. If automatic image setup does not help, perform manual image setup.                                                                                      | "Selecting a supported display mode" on page 2-10             |
| <ul style="list-style-type: none"> <li>● Fuzzy lines in text or a blurry image.</li> <li>● Horizontal or vertical lines through the image.</li> </ul> | <ul style="list-style-type: none"> <li>● Image setup has not been optimized</li> <li>● Your system Display Properties setting have not been optimized.</li> </ul> | When working in the native resolution, you may find additional improvements by adjusting the Dots Per Inch (DPI) setting on your system.                                                | See the Advanced section of your system's display properties. |
| The image is not acceptable when switching to dual mode                                                                                               | It has not set the optimum resolution for each mode                                                                                                               | <ul style="list-style-type: none"> <li>● Use ThinkVision Duo software to optimize the dual screen operation</li> <li>● Adjust graphic card resolution manually</li> </ul>               | "Using the direct access controls" on page 2-6                |



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## Manual image setup

If automatic image setup does not establish the image that you prefer, perform manual image setup.

**Note:** Have your monitor powered on for about 15 minutes, until the monitor warms up.

1. Press  at the bottom of the monitor to open the OSD menu.
2. Use  or  to select  and press  to access.
3. Use  or  to select Image Setup and press  to access.
4. Use  or  to select Clock and Phase adjustment.

- **Clock** (pixel frequency) adjusts the number of pixels scanned by one Horizontal sweep. If the frequency is not correct, the screen shows vertical Stripes and the picture does not have the correct width.
  - **Phase** adjusts the phase of the pixel clock signal. With a wrong phase adjustment, the picture has horizontal disturbances in light picture.
4. When the image no longer looks distorted, save the Clock and Phase adjustments.
  5. Press  to leave the OSD menu.

## Manually installing the monitor driver

Below are steps for manually installing the monitor driver in Microsoft Windows 7, Microsoft Windows 10.

### Installing the monitor driver in Windows 7

To install the device driver in Microsoft® Windows 7, do the following:

1. Turn off the computer and all attached devices.
2. Ensure that the monitor is connected correctly.
3. Turn on the monitor and then turn on the computer. Allow your computer to boot into Windows 7 operating system.
4. From the Lenovo website [https://pcsupport.lenovo.com/solutions/t22v\\_20](https://pcsupport.lenovo.com/solutions/t22v_20), find the corresponding monitor driver and download it to a PC to which this monitor is connected (such as a desktop).
5. Open the Display Properties window by right-clicking Start, Control Panel, Hardware and Sound icon, and then click the Display icon.
6. Click the Change the display settings tab.
7. Click the **Advanced Settings** icon.
8. Click the **Monitor** tab.
9. Click the **Properties** button.
10. Click the **Driver** tab.
11. Click **Update Driver**, then click Browse the computer to find the driver program.
12. Select **Pick from the list of device driver program** on the computer.
13. Click the Have Disk button. By clicking the Browse button, browse and point to the following path:  
X:\Monitor Drivers\Windows 7  
(Where X indicates "the folder in which the downloaded driver is located" (such as a desktop))
14. Select the "T22v-20.inf" file and click the Open button. Click the OK button.
15. Select **Lenovo T22v-20** and click **Next**.

16. After the installation is complete, delete all downloaded files and close all windows.
17. Restart the system. The system will automatically select the maximum refresh rate and corresponding Colour Matching Profiles.

**Note:** On LCD monitors, unlike CRTs, a faster refresh rate does not improve display quality. Lenovo recommends using either 1920 x 1080 at a refresh rate of 60 Hz, or 640 x 480 at refresh rate of 60 Hz.

### Installing the monitor driver in Windows 10

To use the Plug and Play feature in Microsoft Windows 10, do the following:

1. Turn off the computer and all attached devices.
2. Ensure that the monitor is connected correctly.
3. Turn on the monitor and then turn on the computer. Allow your computer to boot into Windows 10 operating system.
4. From the Lenovo website [https://pcsupport.lenovo.com/solutions/t22v\\_20](https://pcsupport.lenovo.com/solutions/t22v_20), find the corresponding monitor driver and download it to a PC to which this monitor is connected (such as a desktop).
5. On the Desktop, move mouse to bottom-left corner of screen, right-click choose Control Panel, then double click the icon of Hardware and Sound, and then click Display.
6. Click the Change the display settings tab.
7. Click the **Advanced Settings** button.
8. Click the **Monitor** tab.
9. Click the **Properties** button.
10. Click the **Driver** tab.
11. Click Update Driver, then click Browse the computer to find the driver program.
12. Select **"Let me pick from a list of device drivers on my computer"**.
13. Click the Have Disk button. By clicking the Browse button, browse and point to the following path:  
X:\Monitor Drivers\Windows 10  
(where X indicates "the folder in which the downloaded driver is located" (such as a desktop))
14. Select the **"T22v-20.inf"** file and click the **Open** button. Click the **OK** button.
15. In the new window, select **Lenovo T22v-20** and click Next.
16. After the installation is complete, delete all downloaded files and close all windows.
17. Restart the system. The system will automatically select the maximum refresh rate and corresponding Color Matching Profiles.

Note: On LCD monitors, unlike CRTs, a faster refresh rate does not improve display quality. Lenovo recommends using either 1920 x 1080 at a refresh rate of 60 Hz, or 640 x 480 at a refresh rate of 60 Hz.

# Manually installing the Face tracking driver in Windows 10

Below are steps for manually installing the Face Tracking driver in Microsoft Windows 10.

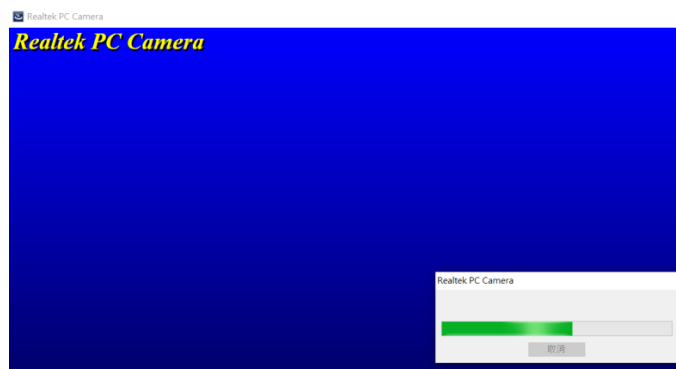
1. Download driver from the Lenovo website  
<https://pcsupport.lenovo.com/us/en/downloads/DS544026>.
2. Unzip file and double click setup.exe.



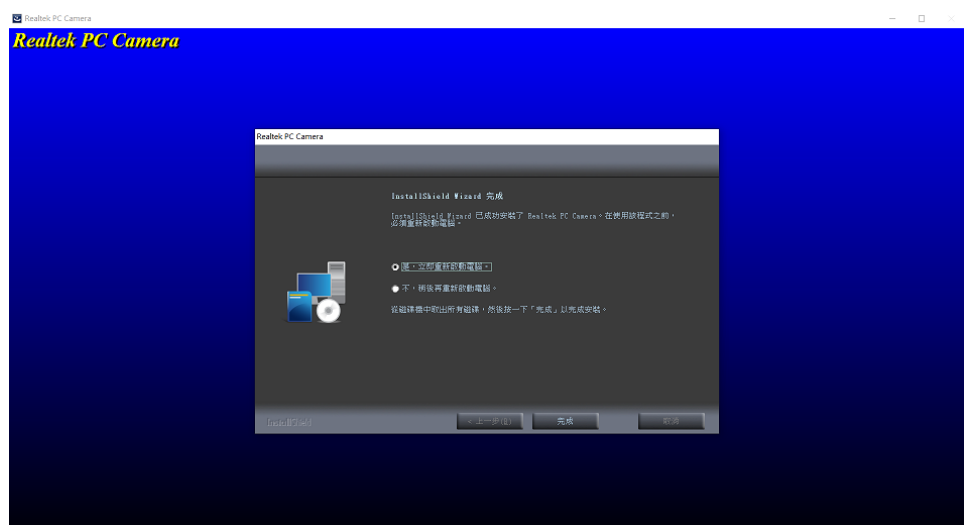
3. Press ok.



4. Install driver.



5. Finish and restart PC.



## Service information

### Customer responsibilities

The warranty does not apply to a product which has been damaged due to accident, misuse, abuse, improper installation, usage not in accordance with product specifications and instructions, natural or personal disaster, or unauthorized alterations, repairs or modifications.

The following are examples of misuse or abuse and not covered by warranty:

- Images burned on to the screen of a CRT monitor. Burned image is preventable by utilizing a moving screen saver or power management.
- Physical damage to covers, bezel, base and cables.
- Scratches or punctures on monitor screens.

### Getting further help

If you still can't solve your problem, please contact the Customer Support Centre.

For more information on contacting the Customer Support Centre, please see Appendix A, "Service and Support" on page A-1.

### Service parts

The following parts are for use by Lenovo service, or Lenovo authorized dealers to support the customer warranty. Parts are for service use only. The table below shows information for model 61FB-MAR6-WW.

*Table 3-3. List of service parts*

| FRU (Field Replaceable Unit)<br>Part number | Description                            | colour      | Machine Type<br>Model (MTM) |
|---------------------------------------------|----------------------------------------|-------------|-----------------------------|
| 5D10X88958                                  | T22v-20 - 21.5 inch FRU Monitor (HDMI) | Raven Black | 61FB-MAR6-WW                |
| 01YY021                                     | T22v-20 USB Type A to Type B cable     | Raven Black | 61FB-MAR6-WW                |
| 01YY022                                     | T22v-20 HDMI cable                     | Raven Black | 61FB-MAR6-WW                |
| 01YY020                                     | T22v-20 DP cable                       | Raven Black | 61FB-MAR6-WW                |
| 5SE0X88952                                  | T22v-20 - FRU Base and Stand           | Raven Black | 61FB-MAR6-WW                |

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## Appendix A. Service and Support

The following information describes the technical support that is available for your product, during the warranty period or throughout the life of the product. Refer to your Lenovo Statement of Limited Warranty for a fully explanation of Lenovo warranty terms.

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### Registering your option

Register to receive product service and support updates, as well as free and discounted computer Accessories and content. Go to:  
<http://www.lenovo.com/support>

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### Online technical support

Online technical support is available during the life of your product through the Lenovo Support Web site at <http://www.lenovo.com/support>  
Product replacement assistance or exchange of defective components also is available during the warranty period, assistance for replacement or exchange of defective components is available. In addition, if your option is installed in a Lenovo computer, you might be entitled to service at your location. Your technical support representative can help you determine the best alternative.

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### Telephone technical support

Installation and configuration support through the Customer Support Center will be withdrawn or made available for a fee, at Lenovo's discretion, 90 days after the option has been withdrawn from marketing. Additional support offerings, including step-by-step installation assistance, are available for a nominal fee.

To assist the technical support representative, have available as much of the following information as possible:

- Option name
- Option number
- Proof of purchase
- Computer manufacturer, model, serial number, and manual
- Exact wording of the error message (if any)
- Description of the problem
- Hardware and software configuration information for your system

If possible, be at your computer. Your technical support representative might want to walk you through the problem during the call.

### Worldwide telephone list

Phone numbers are subject to change without notice. For the most current phone Numbers, go to <http://www.lenovo.com/support/phone>

| Country or Region           | Telephone Number                                                                                                                      |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Argentina                   | 0800-666-0011 (Spanish, English)                                                                                                      |
| Australia                   | 1-800-041-267 (English )                                                                                                              |
| Austria                     | 0810-100-654 (local phone) (German)                                                                                                   |
| Belgium                     | Warrant service and support: 02-339-36-11 (Dutch, French)                                                                             |
| Bolivia                     | 0800-10-0189 ( Spanish)                                                                                                               |
| Brazil                      | Calls made from within the Sao Paulo region: 11-3889-8986<br>Calls made from outside the Sao Paulo region: 0800-701-4815 (Portuguese) |
| Brunei Darussalam           | 800-1111 (English)                                                                                                                    |
| Canada                      | 1-800-565-3344 (English, French)                                                                                                      |
| Chile                       | 800-361-213(Spanish )                                                                                                                 |
| China                       | Technical Support Line: 400-100-6000 (Mandarin)                                                                                       |
| China<br>(Hong Kong S.A.R.) | (852) 3516-8977<br>(Cantonese, English, Mandarin)                                                                                     |

| Country or Region       | Telephone Number                                                                                                               |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| China<br>(Macau S.A.R.) | 0800-807 / (852) 3071-3559<br>(Cantonese, English, Mandarin)                                                                   |
| Colombia                | 1-800-912-3021 (Spanish)                                                                                                       |
| Costa Rica              | 0-800-011-1029( Spanish )                                                                                                      |
| Croatia                 | 385-1-3033-120(Croatian)                                                                                                       |
| Cyprus                  | 800-92537(Greek)                                                                                                               |
| Czech Republic          | 800-353-637(Czech)                                                                                                             |
| Denmark                 | Warranty service and support: 7010-5150 (Danish)                                                                               |
| Dominican Republic      | 1-866-434-2080(Spanish )                                                                                                       |
| Ecuador                 | 1-800-426911 (OPCION 4) (Spanish )                                                                                             |
| Egypt                   | Primary: 0800-0000-850<br>Secondary:0800-0000-744<br>(Arabic, English)                                                         |
| El Salvador             | 800-6264 (Spanish)                                                                                                             |
| Estonia                 | 372-66-0-800<br>(Estonian, Russian, English)                                                                                   |
| Finland                 | Warranty service and support: +358-800-1-4260(Finnish)                                                                         |
| France                  | Warranty service and support (hardware): 0810-631-213(French)                                                                  |
| Germany                 | Warranty service and support: 0800-500-4618 (toll-free)(German)                                                                |
| Greece                  | Lenovo Business Partner (Greek)                                                                                                |
| Guatemala               | Dial 999-9190, wait for operator, and request to reach 877-404-9661 (Spanish)                                                  |
| Honduras                | Dial 800-0123(Spanish)                                                                                                         |
| Hungary                 | +36-13-825-716<br>(English, Hungarian)                                                                                         |
| India                   | Primary: 1800-419-4666 (Tata)<br>Secondary: 1800-3000-8465 (Reliance)<br>Email: commercialts@lenovo.com<br>(English and Hindi) |
| Indonesia               | 1-803-442-425<br>62 213-002-1090 (Standard Charges Apply)<br>(English, Bahasa Indonesia)                                       |
| Ireland                 | Warranty service and support: 01-881-1444 (English)                                                                            |
| Israel                  | Givat Shmuel Service and Center: +972-3-531-3900<br>(Hebrew, English)                                                          |
| Italy                   | Warranty service and support: +39-800-820094 (Italian)                                                                         |
| Japan                   | 0120-000-817<br>(Japanese, English)                                                                                            |
| Kazakhstan              | 77-273-231-427(Standard charges Apply) (Russian , English)                                                                     |
| Korea                   | 080-513-0880 (Collect Call)<br>02-3483-2829 (Toll Call) (Korean)                                                               |
| Latvia                  | 371-6707-360(Latvian, Russian, English)                                                                                        |
| Lithuania               | 370 5278 6602(Italian, Russian, English )                                                                                      |
| Luxembourg              | ThinkServer and ThinkStation: 352-360-385-343 ThinkCentre and<br>ThinkPad: 352-360-385-222 (French)                            |
| Malaysia                | 1-800-88-0013<br>03-7724-8023 (Standard Charges Apply) (English)                                                               |
| Malta                   | 356-21-445-566(English, Italian, Maltese Arabic)                                                                               |
| Mexico                  | 001-866-434-2080(Spanish)                                                                                                      |
| Netherlands             | 020-513-3939 (Dutch)                                                                                                           |
| New Zealand             | 0508-770-506 (English )                                                                                                        |
| Nicaragua               | 001-800-220-2282 (Spanish)                                                                                                     |
| Norway                  | 8152-1550(Norwegian)                                                                                                           |

| Country or Region | Telephone Number                                                                                                                  |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Panama            | Lenovo Customer Support Center: 001-866-434(Toll-Free)(Spanish)                                                                   |
| Peru              | 0-800-50-866 (OPCION 2) (Spanish)                                                                                                 |
| Philippines       | 1-800-8908-6454 (GLOBE subscribers)<br>1-800-1441-0719 (PLDT subscribers) (Tagalog, English)                                      |
| Poland            | Laptops and tablets branded with logo Think: 48-22-273-9777<br>ThinkStation and ThinkServer: 48-22-878-6999<br>(Polish, English ) |
| Portugal          | 808-225-115 (Standard Charges Apply) (Portuguese)                                                                                 |
| Romania           | 4-021-224-4015(Romanian)                                                                                                          |
| Russia            | +7-499-705-6204<br>+7-495-240-8558<br>(Standard Charges Apply)(Russian)                                                           |
| Singapore         | 1-800-415-5529<br>6818-5315 (Standard Charges Apply)<br>(English, Mandarin, Bahasa Malaysia)                                      |
| Slovakia          | ThinkStation and ThinkServer: 421-2-4954-5555                                                                                     |
| Slovenia          | 386-1-2005-60 (Slovenian)                                                                                                         |
| Spain             | 34-917-147-833(Spanish)                                                                                                           |
| Sri Lanka         | +9477-7357-123 (Sumathi Information systems) (English)                                                                            |
| Sweden            | Warranty service and support: 077-117-1040 (Swedish)                                                                              |
| Switzerland       | Warranty service and support: 0800-55-54-54 (German, French, Italian)                                                             |
| Taiwan            | 0800-000-702 (Mandarin)                                                                                                           |
| Thailand          | 001-800-4415-734<br>(+662) 787-3067 (Standard Charges Apply)(Thai, English)                                                       |
| Turkey            | 444-04-26 (Turkish)                                                                                                               |
| United Kingdom    | Standard warranty support: 03705-500-900 ( local rate) Standard warranty support: 08705-500-900(English)                          |
| United States     | 1-800-426-7378 (English)                                                                                                          |
| Uruguay           | 000-411-005-6649 (Spanish)                                                                                                        |
| Venezuela         | 0-800-100-2011 (Spanish)                                                                                                          |
| Vietnam           | 120-11072 (Toll Free)<br>84-8-4458-1042 (Standard Charges Apply) (Vietnamese, English)                                            |

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## Appendix B. Notices

Lenovo may not offer the products, services, or features discussed in this document in all countries. Consult your local Lenovo representative for information on the products and services currently available in your area. Any reference to a Lenovo product, program, or service is not intended to state or imply that only that Lenovo product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any Lenovo intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any other product, program, or service.

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Any performance data contained herein was determined in a controlled environment. Therefore, the result obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurements may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.



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## Recycling information

Lenovo encourage owners of information technology (IT) equipment to responsibly recycle their equipment when it is no longer needed. Lenovo offers a variety of programs and services to assist equipment owners in recycling their IT products. For information on recycling Lenovo products, go to:

<http://www.lenovo.com/lenovo/environment/recycling>

### 環境配慮に関して

#### 本機器またはモニターの回収リサイクルについて

企業のお客様が、本機器が使用済みとなり廃棄される場合は、資源有効利用促進法の規定により、産業廃棄物として、地域を管轄する県知事あるいは、政令市長の許可を持った産業廃棄物処理業者に適正処理を委託する必要があります。また、弊社では資源有効利用促進法に基づき使用済みパソコンの回収および再利用・再資源化を行う「PC 回収リサイクル・サービス」を提供しています。詳細は、<http://www.ibm.com/jp/pc/service/recycle/pcrecycle/> をご参照ください。

また、同法により、家庭で使用済みとなったパソコンのメーカー等による回収再資源化が 2003 年 10 月 1 日よりスタートしました。詳細は、<http://www.ibm.com/jp/pc/service/recycle/pcrecycle/> をご参照ください。

#### 重金属を含む内部部品の廃棄処理について

本機器のプリント基板等には微量の重金属（鉛など）が使用されています。使用後は適切な処理を行うため、上記「本機器またはモニターの回収リサイクルについて」に従って廃棄してください。

## Collecting and recycling a disused Lenovo computer or monitor

If you are a company employee and need to dispose of a Lenovo computer or monitor that is the property of the company, you must do so in accordance with the Law for Promotion of Effective Utilization of Resources. Computers and monitors are categorized as industrial waste and should be properly disposed of by an industrial waste disposal contractor certified by a local government. In accordance with the Law for Promotion of Effective Utilization of Resources, Lenovo Japan provides, through its PC Collecting and Recycling Services, for the collecting, reuse, and recycling of disused computers and monitors. For details, visit the Lenovo Web site at

[www.ibm.com/jp/pc/service/recycle/pcrecycle/](http://www.ibm.com/jp/pc/service/recycle/pcrecycle/). Pursuant to the Law for Promotion of Effective Utilization of Resources, the collecting and recycling of home-used computers and monitors by the manufacturer was begun in October 1, 2003. This service is provided free of charge for home-used computers sold after October 1, 2003. For details, visit the Lenovo Web site at

[www.ibm.com/jp/pc/service/recycle/personal/](http://www.ibm.com/jp/pc/service/recycle/personal/)

## Disposing of Lenovo computer components

Some Lenovo computer products sold in Japan may have components that contain heavy metals or other environmental sensitive substances. To properly dispose of disused components, such as a printed circuit board or drive, use the methods described above for collecting and recycling a disused computer or monitor.

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## Trademarks

The following terms are trademarks of Lenovo in the United States, other countries, or both:

Lenovo

The Lenovo logo

ThinkCentre

ThinkPad

ThinkVision

Microsoft, Windows, and Windows NT are trademarks of the Microsoft group of companies.

Other company, product, or service names may be trademarks or service marks of others.

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## Turkish statement of compliance

The Lenovo product meets the requirements of the Republic of Turkey Directive on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (EEE).

### Türkiye EEE Yönetmeliğine Uygunluk Beyanı

Bu Lenovo ürünü, T.C. Çevre ve Orman Bakanlığı'nın "Elektrik ve Elektronik Eşyalarda Bazı Zararlı Maddelerin Kullanımının Sınırlandırılmasına Dair Yönetmelik (EEE)" direktiflerine uygundur.

EEE Yönetmeliğine Uygundur.

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## Ukraine RoHS

Цим підтверджуємо, що продукція Леново відповідає вимогам нормативних актів України, які обмежують вміст небезпечних речовин.

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## India RoHS

RoHS compliant as per E-Waste(Management & Handling)Rules,2011.

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## Power cords and power adapters

Use only the power cords and power adapters supplied by the product manufacturer. Do not use the ac power cord for other devices.