

WORTMANN AG



terra[®]

LCD/LED 2230W PV

Manual

Congratulations!

This display is designed for both you and the planet!



The display you have just purchased carries the TCO Certified label. This ensures that your display is designed, manufactured and tested according to some of the strictest quality and environmental requirements in the world. This makes for a high performance product, designed with the user in focus that also minimizes the impact on the climate and our natural environment.

TCO Certified is a third party verified program, where every product model is tested by an accredited impartial test laboratory. TCO Certified represents one of the toughest certifications for displays worldwide.

Some of the Usability features of the TCO Certified for displays:

- Good visual ergonomics and image quality is tested to ensure top performance and reduce sight and strain problems. Important parameters are luminance, contrast, resolution, black level, gamma curve, color and luminance uniformity, color rendition and image stability
- Product have been tested according to rigorous safety standards at an impartial laboratory
- Electric and magnetic fields emissions as low as normal household background levels
- Low acoustic noise emissions

Some of the Environmental features of the TCO Certified for displays:

- The brand owner demonstrates corporate social responsibility and has a certified environmental management system (EMAS or ISO 14001)
- Very low energy consumption both in on- and standby mode minimize climate impact
- Restrictions on chlorinated and brominated flame retardants, plasticizers, plastics and heavy metals such as cadmium, mercury and lead (RoHS compliance)
- Both product and product packaging is prepared for recycling
- The brand owner offers take-back options

The requirements can be downloaded from our web site. The requirements included in this label have been developed by TCO Development in co-operation with scientists, experts, users as well as manufacturers all over the world. Since the end of the 1980s TCO has been involved in influencing the development of IT equipment in a more user-friendly direction.

Our labeling system started with displays in 1992 and is now requested by users and It-manufacturers all over the world. About 50% of all displays worldwide are TCO certified.

For more information, please visit
www.tcodevelopment.com



Operation Instructions

Thank you for purchasing this monitor, a high-resolution multi-scan color monitor. Please read this guide thoroughly before installation.

FCC RADIO FREQUENCY INTERFERENCE STATEMENT WARNING: (FOR FCC CERTIFIED MODELS)

This monitor has been tested and found compliant with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide proper protection against harmful interference to a residential installation. This monitor generates, uses, and can radiate radio frequency energy. Harmful interference to radio communication may be led as a result if it's not properly installed and used. However, there is no guarantee that interference will not occur in a particular installation. If this monitor does cause serious interference to radio or television reception, resetting the monitor may determine it. Moreover, users are encouraged to correct interference by doing one or more of the following:

- Reorient or relocate the receiving antenna.
- Move the monitor and the receiver further away from each other.
- Connect the monitor into an outlet on a circuit different from that to which the receiver is connected.
- Consult your local dealer or an qualified technician.

FCC Warning:

To assure a continued FCC compliance, a user must use a grounded power supply cord and the provided shielded video interface cable with bonded ferrite cores. Also, any unauthorized changes or modifications to this monitor would void the user's authority to operate this device.

Note: If necessary, shielded interface cables and AC power cord must be used to meet the emission level limits.

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Safety Precautions

This monitor is manufactured and tested on a ground principle that a user's safety comes first. However, improper use or installation may result danger to the monitor as well as to the user. Carefully go over the following WARNINGS before installation and keep this guide handy.

WARNINGS:

- ◆ This monitor should be operated only at the correct power sources indicated on the label on the rear end of the monitor. If you're unsure of the power supply in your residence, consult your local dealer or power company.
- ◆ Do not try to repair the monitor yourself as it contains no user-serviceable parts. The monitor should only be repaired by a qualified technician.
- ◆ Do not remove the monitor cabinet. There is high-voltage parts inside that may cause electric shock to human bodies, even when the power cord is disconnected .
- ◆ Stop using the monitor if the cabinet is damaged. Have it checked by a service technician.
- ◆ Put your monitor only in a clean, dry environment. Unplug the monitor immediately if gets wet and consult your service technician.
- ◆ Always unplug the monitor before cleaning it. Clean the cabinet with a clean, dry cloth. Apply non-ammonia based cleaner onto the cloth, not directly onto the glass screen.
- ◆ Keep the monitor away from magnetic objects, motors, TV sets, and transformer.
- ◆ Do not place heavy objects on the cable or power cord.
- ◆ For PLUGGABLE EQUIPMENT, the Socket-outlet shall be installed near the equipment and shall be easily accessible.
- ◆ For displays with glossy bezels the user should consider the placement of the displays as the bezel may cause disturbing reflections from surrounding light and bright surfaces.



According to WEEE regulation, this monitor can't be handled as normal trash in Europe when it is out of usage. Please refer to the recycle information from our website to handle it.

First Setup

Congratulation for purchasing this monitor of high performance!
This monitor comes with the following accessories :

- AC Power Cord
- DVI cable (24 pin)
- Warranty Card
- Audio cable
- User's guide

Quick Installation

1. Connect Video cable (VGA cable)

Make sure both monitor and computer are powered OFF. Connect the video cable (VGA cable) to the computer, then to the monitor.

or connect DVI cable

Connect the DVI cable from DVI output of computer to the DVI input of the monitor.

2. Connect Power cord

Connect the power cord to a properly grounded AC outlet, then to the monitor.

3. Connect Audio cable

Connect the Audio cable from Audio output of computer to the Audio input of the monitor.

4. Power-ON computer and monitor

Power-ON the computer, then Power-ON the monitor.

5. Windows users: Setting the Timing Mode (Resolution and Refresh Rate)

Example: 1680 x 1050 @ 60 Hz

Resolution Right-click on the Windows desktop > Properties > Settings > "Desktop Area". Set the resolution.

Refresh Rate (vertical frequency) See your graphic card's user guide for instructions.

Example:

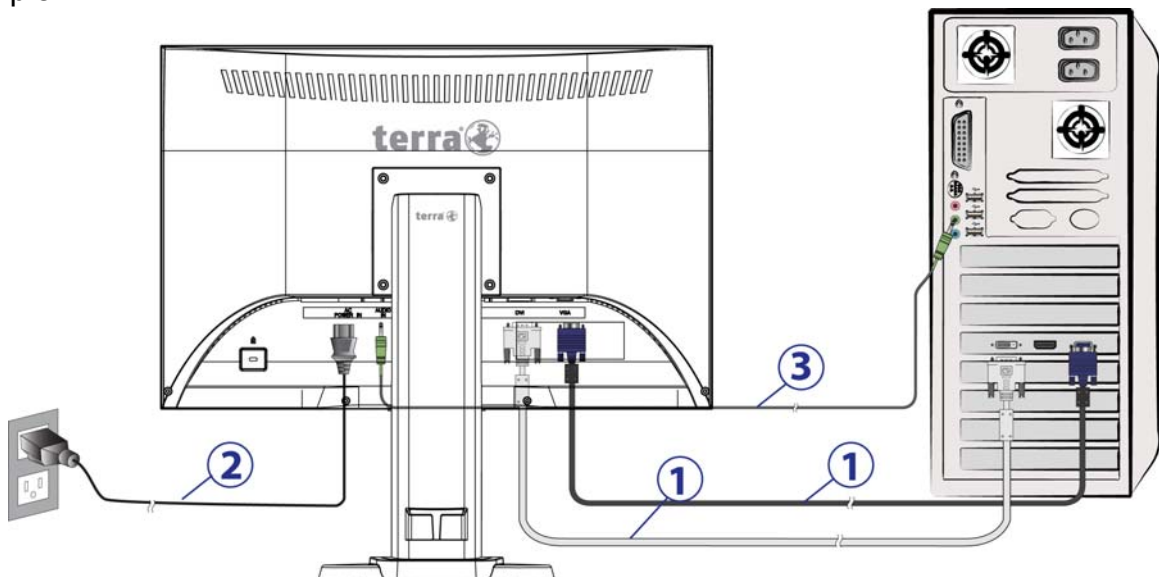
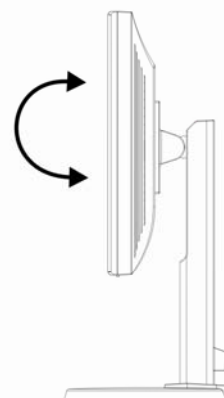


Illustration for turning the high adjustable stand base

(1) Tilt Angle

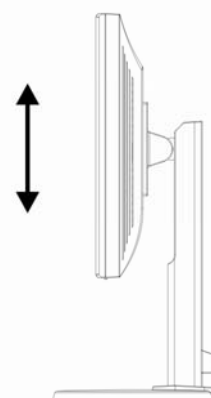
Tilt UP: $15^{\circ} \pm 2^{\circ}$

Tilt DOWN: $-5^{\circ} \pm 2^{\circ}$



(2) Lift Range

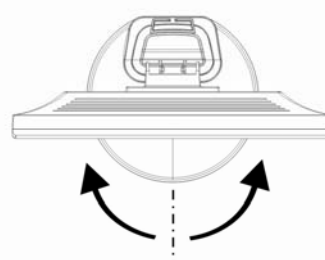
110mm \pm 5mm



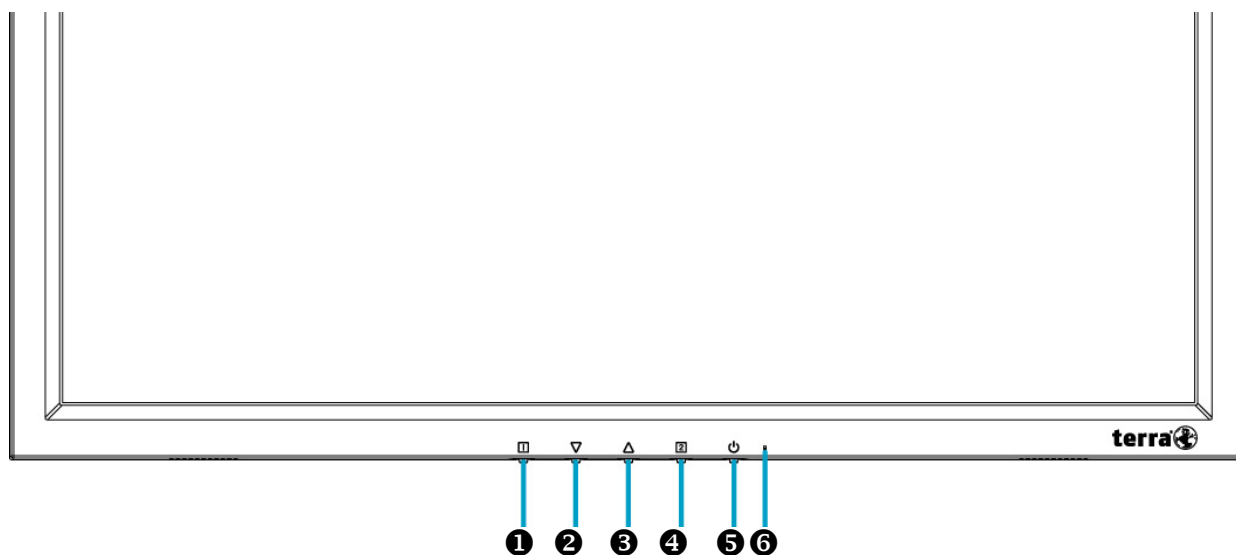
(3) Swivel Angle

45 \pm 2° Left

45 \pm 2° Right

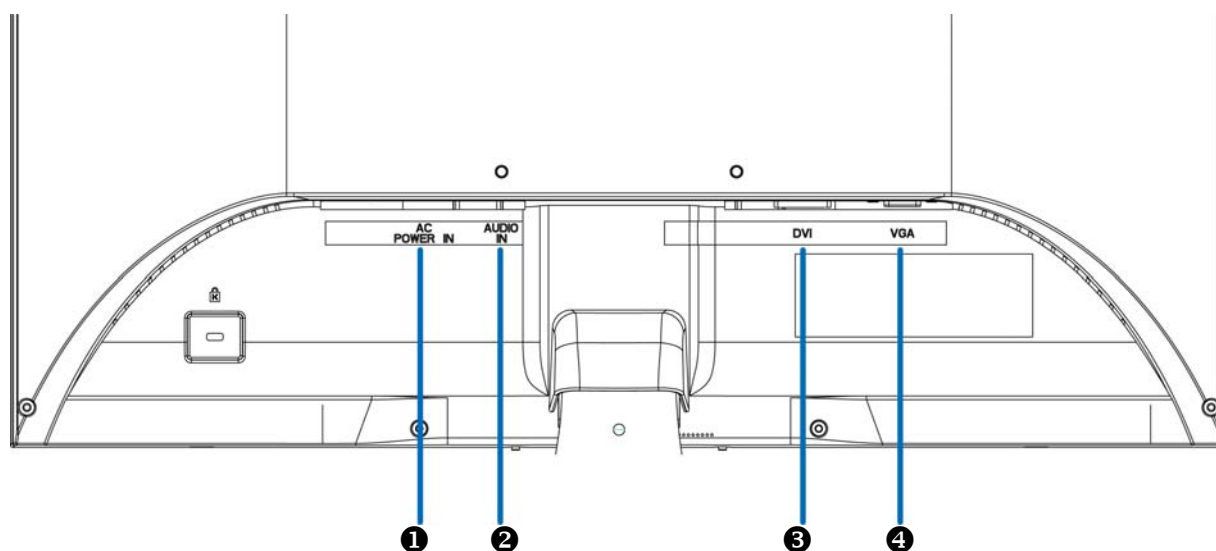


Front View of the Product



①	OSD Menu On/Off
②	Scroll Down/ Decrease
③	Scroll Up/ Increase
④	Confirm Select
⑤	Power ON/OFF
⑥	LED Indicator

Rear View of the Product

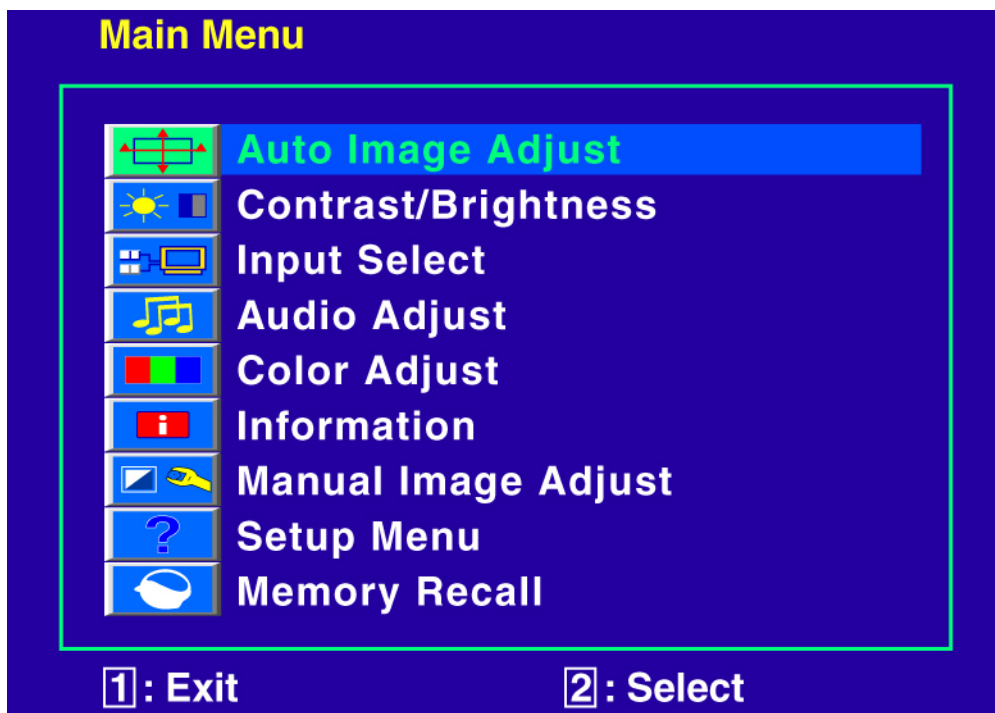


①	Power input
②	Audio input
③	DVI input (DVI 24 pin)
④	VGA input (D-Sub 15 pin)

Using On Screen Display (OSD) Functions

1	Display main menu
	Exit from OSD menu
2	Manual adjust mode select for VGA, DVI mode
▼	Select the desired item when in OSD menu
	When not in OSD menu, directly enters Contrast/ Brightness/ DCR / ECO Mode menu
▲	Select the desired item when in OSD menu
	Auto adjust the image when not in main menu
▼+▲	Recall both of Contrast and Brightness (when not in OSD menu)
1+▼	Power Lock (when not in OSD menu)
1+▲	OSD Lock (when not in OSD menu)

Main Menu



Short Cuts Function from the button(s)



Auto Image Adjust: To auto adjust Horizontal Position, Vertical Position, Phase (Fine Tune) and Clock (H. Size) of the screen.



Contrast: To adjust the foreground white level of screen image.

▲: increase contrast, ▼: decrease contrast.



Brightness: To adjust the luminance of the video.

▲: increase brightness, ▼: decrease brightness.

DCR: To detect the distribution of the visual signals inputs, and create an optimized contrast.

ECO Mode: Contrast and Brightness adjustment disabled when ECO is active.



Input Select: When press Input Select change Input signal to VGA or DVI.



Audio Adjust: To adjust the audio functions.

Volume: To adjust the volume of speaker output.



Color Adjust: To select the color for improving brightness and color saturation between Cool, Normal, Warm, and User Color.

Cool: Adds blue to screen image for cooler white.

Normal: Adds red to screen image for warmer white and richer red.

Warm: Adds green to screen image for a darker color.

User Color: Individual adjustments for red (R), green (G), blue (B).

1. Press button **2** to select the desired color.

2. Press ▼ or ▲ button to adjust selected color.



Information: To display the information, regarding the current input signal coming from the graphic card in your computer.

Note: See your graphic card user guide for more information about changing the resolution and refresh rate.



Manual Image Adjust: To manually adjust the Horizontal Size, H. /V. position, Fine Tune, Sharpness, Video Mode adjust and Color Vision Mode.



Horizontal Size: To adjust the width of the screen image.

▼: decrease the width of screen image, ▲: increase the width of screen image.



H./V. Position: To adjust the horizontal and vertical position of the video.

H. Position: ▲: move screen to the right, ▼: move screen to the left.

V. Position: ▲: move screen up, ▼: move screen down.



Fine Tune: To adjust the delay time of data and clock.

Press ▼ or ▲ to adjust to your preference.



Sharpness: To adjust the clarity of a non-WSXGA(1680x1050) signal with ▼ or ▲ button.



Video Mode adjust: To select the video mode from Full Screen, Over Screen or Aspect Ratio.

Full Screen: To select full-screen size image.

Over Screen: To select over-screen size image.

Aspect Ratio: To select 4:3 image size.



Color Vision Mode: Provides an optimum display environment depending on the contents displayed. It contains 6 user-selectable presets.

Standard is for general windows environment and monitor default setting.

Game optimized for PC game environment.

Cinema optimized for movie and video environment.

Scenery optimized for displaying outdoor scenery images.

Text optimized for text editing and viewing in a word processing environment.



Setup Menu: To set up Language Select, OSD Position, OSD Time Out and OSD Background.



Language Select: To allow users to choose from available languages.



OSD Position: Press ▼ or ▲ button to select between horizontal and vertical OSD Position adjustment.

H. Position: To horizontally adjust the OSD position.

▲: move OSD to the right, ▼: move OSD to the left.

V. Position: To vertically adjust the OSD position.

▲: move OSD up, ▼: move OSD down.



OSD Time Out: To automatically turn off On Screen Display (OSD) after a preset period of time.



OSD Background: Allows the user to turn the OSD background On or Off.



Memory Recall: To recall factory settings for Video & Audio controls.

Press button **2** to select the Memory Recall menu option.

Supporting Timing Modes

VGA	720 x 400 @ 70Hz
VGA	640 x 480 @ 60Hz
MAC	640 x 480 @ 67Hz
VESA	640 x 480 @ 72Hz
VESA	640 x 480 @ 75Hz
VESA	800 x 600 @ 56Hz
VESA	800 x 600 @ 60Hz
VESA	800 x 600 @ 72Hz
VESA	800 x 600 @ 75Hz
MAC	832 x 624 @ 75Hz
VESA	1024 x 768 @ 60Hz
VESA	1024 x 768 @ 70Hz
VESA	1024 x 768 @ 75Hz
VESA	1280 x 960 @ 60Hz
VESA	1152 x 864 @ 75Hz
MAC	1152 x 870 @ 75Hz
VESA	1280 x 1024 @ 60Hz
VESA	1280 x 1024 @ 75Hz
VESA	1440 x 900 @ 60Hz
VESA	1440 x 900 @ 75Hz
CVT	1400 x 1050 @ 60Hz
VESA	1600 x 1200 @ 60Hz
VESA	1680 x 1050 @ 60Hz

Warning: Do not set the graphic card in your computer to exceed these maximum refresh rates. Doing so may result in permanent damage to your monitor.

Note: Simultaneously press **[1]** and **[2]** keys on monitor panel to switch between similar PC timings.

Similar PC Timing on list below:

- 720 x 400 @ 70Hz / 640 x 400 @ 70Hz
- 1400 x 1050 @ 60Hz / 1680 x 1050 @ 60Hz
- 640 x 480 @ 60Hz / 720 x 480 @ 60Hz

Technical Information

Technical Specification

LCD Panel	55.9 cm (22") TFT
Power Management	VESA DPMS compatible Off Mode, < 0.5 W
Displayable Resolution	WSXGA 1680 x 1050 max. Vertical Frequency 60Hz max.
Pixel Dimension	0.282 x 0.282 mm
LCD Display Color	16.7M
Tilt	-5°~15° (±2°)
Active Display Area	473.76 mm x 296.1 mm
Temperature	Operating: 0°C ~ + 40°C Storage: -20°C ~ + 60°C
Compliance	CE, TCO 6.0, TÜV/GS, TÜV/ERGONOMIE GEPRUFT, ISO 9241-307, WEEE
Power	Input Voltage AC100-240 V
Speaker	1W x 2

***subject to change without notice**

Care and Maintenance

Care

- Avoid exposing your monitor directly to sunlight or other heat source. Place your monitor away from the sun to reduce glare.
- Put your monitor in a well ventilated area.
- Do not place any heavy things on top of your monitor.
- Make certain your monitor is installed in a clean and moisture-free area.
- Keep your monitor away from magnets, motors, transformers, speakers, and TV sets.

Note

- Move the monitor out of the package and take off the plastic bag and Polystyrene Foam.
- Pull the base from Parallel versus Panel to Vertical.
- Adjust the Panel within $0(\pm 2)$ degree leaning forward and $20(\pm 2)$ degree leaning backward.

Safety Tips

- If smoke, abnormal noise or odor came out from your monitor, caution you should remove the power cord immediately and call your service center.
- Never remove the rear cover of your monitor cabinet. The display unit inside contains high-voltage parts and may cause electric shock to human bodies.
- Never try to repair your monitor yourself. Always call your service center or a qualified technician to fix it.

Troubleshooting

No power

- Make sure AC power cord is securely connected to the power adapter and the power supply is firmly connected to the monitor.
- Plug another electrical device into the power outlet to verify that the outlet is supplying proper voltage.
- Make sure all signal cables are installed.

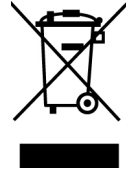
Power on but no screen image

- Make sure the video cable supplied with the monitor is tightly secured to the video output port on back of the computer. If not, tightly secure it.
- Adjust brightness.

Wrong or abnormal colors

- If any colors (red, green, blue) are missing, check the video cable to make sure it is securely connected. Loose or broken pins in the cable connector could cause an improper connection.
- Connect the monitor to another computer.

WEEE Statement



Wichtige Recyclinginformation

Das Gerät darf nach dem Ende der Nutzungszeit nicht mit dem Restmüll entsorgt werden. Bitte führen Sie es zur umweltgerechten Entsorgung den kommunalen Altgeräte-Sammelstellen zu.

Für weitere Informationen wenden Sie sich bitte an die unten stehende Adresse.

Important Information for Recycling

This warning sign of trash bin indicates that the objects are not allowed to be disposed as general refuse. Please follow the local act and carry out further disposal with refuse recycling and collecting system in your Country or District.

Please contact the address below for more information on recycling.

Informations importantes relatives au recyclage

En fin de vie, cet appareil ne doit pas être jeté aux ordures ménagères. Veuillez respecter les réglementations locales et rester en conformité avec le système de collecte et de recyclage des ordures en vigueur dans votre région. Pour plus d'information sur le recyclage, veuillez contacter votre centre de recyclage agréé. Votre attitude quand au recyclage améliorera l'avenir de la planète et créera un environnement de vie de qualité pour les générations futures.

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Version 2, June 1991

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