

Installation and Operating Instructions

Product Information

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Product Features

180MT

- 18 inch-SXGA LCD all-in-one Monitor/TV with excellent display performance
- Multiple video input allowing display of PC, TV(with Teletext), DVD and VCD
- Picture in Picture (PIP) function for displaying both TV or video and PC application on the screen
- Super-high brightness/contrast and fast response time
- 100-page Teletext (available only in Asia Pacific and Western Europe)
- Digital Nicam/2CS stereo(available only in Asia Pacific and Western Europe)
- Component Video Input (YPbPr/YCbCr) for DVD (available only in Asia Pacific and NTSC systems)
- Euroconnector (SCART) (available only in Western Europe)

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Technical Specifications*

LCD PANEL	
• Type	TFT LCD
• Screen size	18.1" visual
• Pixel Pitch	0.2805 x 0.2805mm
• LCD Panel type	1280 x 1024pixels R.G.B. vertical stripe Anti-glare polarizer
• Effective viewing area	(H) 359.0 x (V) 287.2mm
• Display Colors	8 bits interface (16.7M colors)
SCANNING	
• Vertical refresh rate	56Hz-75Hz
• Horizontal frequency	30kHz-80kHz

VIDEO	
• Video dot rate	135 MHz
• Input impedance	
- Video	75 Ohm
- Sync	2K Ohm
• Input signal levels	0.7 Vpp
• Sync input signal	Separate sync Composite sync
• Sync polarities	Positive and negative
• Input Frequency	SXGA Hsync 64- 80 kHz, Vsync 60 - 75 Hz (N.I.) XGA Hsync 48- 61 kHz, Vsync 60 - 75 Hz (N.I.) SVGA Hsync 35- 50 kHz, Vsync 56 - 75 Hz (N.I.) VGA Hsync 31- 38 kHz, Vsync 60 - 75 Hz (N.I.)
• Video interface	D-sub, S-Video, TV-RF, SCART (Europe) or composite and components video (others)
AUDIO	
• Input level for PC/SVHS/SCART	500 mV nominal
• Headphone out signal level	4mW max.
• Loudspeaker	5W Stereo Audio (2.5W/channel RMS x2, 200Hz~10kHz, 4 ohm, 10% THD)
OPTICAL CHARACTERISTICS	
• Contrast ratio	300:1 (typ.)
• Brightness	300 cd/m ² (typ.)
• Peak contrast angle	6 o'clock
• White Chromacity	x: 0.281 y: 0.311 (at 9300° K) x: 0.312 y: 0.338 (at 6500° K)
• Viewing Angle (C/R ≥10)	Upper ≥85° (typ.) Lower ≥85° (typ.) Left ≥85 ° (typ.) Right ≥85 ° (typ.)
• Response time	≤30ms (typ.)

* These information are subject to change without notice.

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Resolution & Preset Modes

- Maximum 1280 x 1024 at 75Hz
- Recommended 1280 x 1024 at 60Hz

17 user definable modes

17 factory preset modes:

H. freq (kHz)	Resolution	V. freq (Hz)
31.5	640*350	70.1
31.5	720*400	70.1
31.5	640*480	59.9
35.0	640*480	67.0
37.8	640*480	72.8
37.5	640*480	75.0
35.2	800*600	56.3
37.9	800*600	60.3
48.0	800*600	72.0
46.9	800*600	75.0
49.7	832*624	75.0
48.4	1024*768	60.0
56.5	1024*768	70.0
60.1	1024*768	75.0
68.7	1152*870	75.0
64.0	1280*1024	60.0
80.0	1280*1024	75.0

(Interlace mode is not applicable)

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Automatic Power Saving

If you have VESA's DPMS compliance display card or software installed in your PC, the monitor can automatically reduce its power consumption when not in use. And if an input from a keyboard, mouse or other input device is detected, the monitor will automatically "wake up". The following table shows the power consumption and signaling of this automatic power saving

features:

Power Management Definition					
VESA Mode	Video	H-sync	V-sync	Power Used	LED color
ON	Active	Yes	Yes	68W (typ.)	Green
Stand-by	Blanked	No	Yes	< 2W	Blinking Green
Suspend	Blanked	Yes	No	< 2W	Blinking Green
OFF	Blanked	No	No	< 2W	Blinking Green

This monitor is ENERGY STAR[®] compliant. As an ENERGY STAR[®] Partner, PHILIPS has determined that this product meets the ENERGY STAR[®] guidelines for energy efficiency.

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Physical Specifications

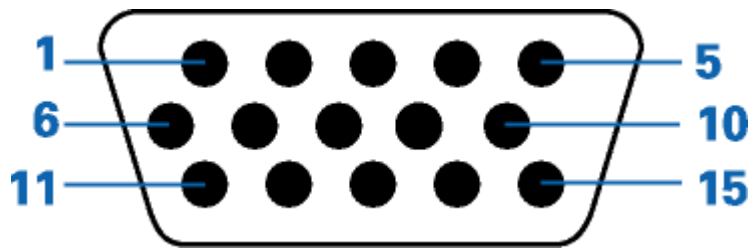
• Dimension (WxHxD)	452 x 452 x 200 mm (incl. Pedestal)
• Weight	6.3 Kg
• Tilt (Forward / Backward)	0° / 20°
• Power supply	100 — 240 VAC, 50/60 Hz
• Power consumption	68 W (typ.)
• Temperature (operating)	0° C to 35° C (operating) -20 ° C to 60° C (storage))
• Relative humidity	20% to 80%
• System MTBF	50K hrs

* These information are subject to change without notice.

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Pin Assignment

The 15-pin D-sub connector (male) of the signal cable:



Pin No.	Assignment		Pin No.	Assignment
1	Red video input		9	DDC +5V
2	Green video input		10	Logic ground
3	Blue video input		11	Identical output - connected to pin 10
4	Identical output - connected to pin 10		12	Serial data line (SDA)
5	Ground		13	H. Sync / H+V
6	Red video ground		14	V. Sync
7	Green video ground		15	Data clock line (SCL)
8	Blue video ground			

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Product Views

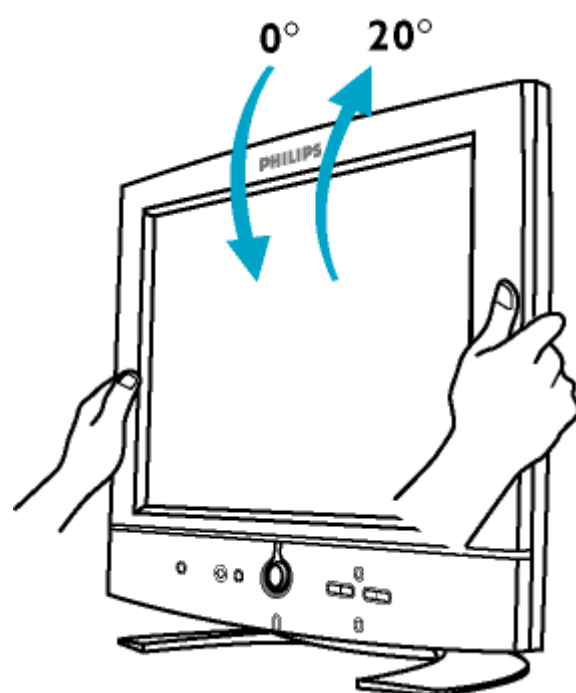
Follow the links to see various views of the monitor and its components.

[Front View Product Description](#)

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Physical Function

Tilt

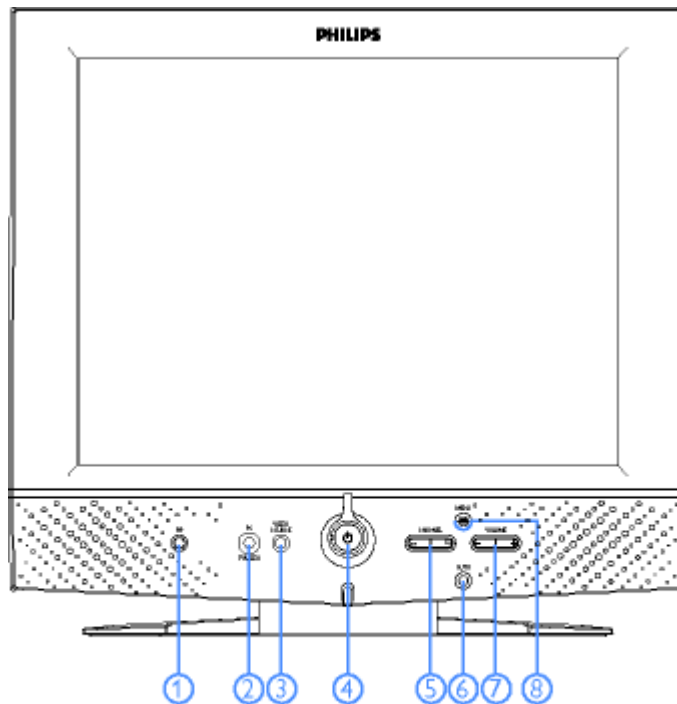


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Installing your LCD Monitor/TV

[Front View Product Description](#) • [Connecting to Your PC, TV antenna,DVD/VCR etc.](#) • [Rem and Re-install the Base](#) • [Basic Monitor TV Connections](#) • [Getting Started](#) • [Optimizing Performance](#)

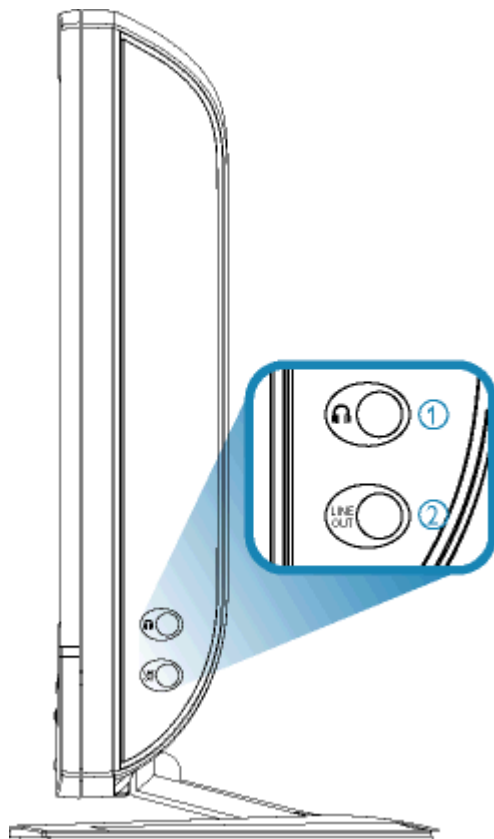
Front View Product Description



- | | | |
|---|---|--|
| 1 | PIP | Activate PIP (Picture in Picture) window and select size |
| 2 | PC<->TV/Video | Switch the monitor between PC mode and TV/Video mode |
| 3 | VIDEO SOURCE | TV/Video source selection |
| 4 |  | Power switch On/Off |
| 5 |  | Increase or decrease the channel number or up or down the highlighted function in OSD |
| 6 | AUTO | Automatically adjust the H/V position, phase and clock setting |
| 7 | + - | Increase or decrease the level of audio volume or increase or decrease the highlighted function in OSD |
| 8 | MENU OK | Open the OSD and select the highlighted function |

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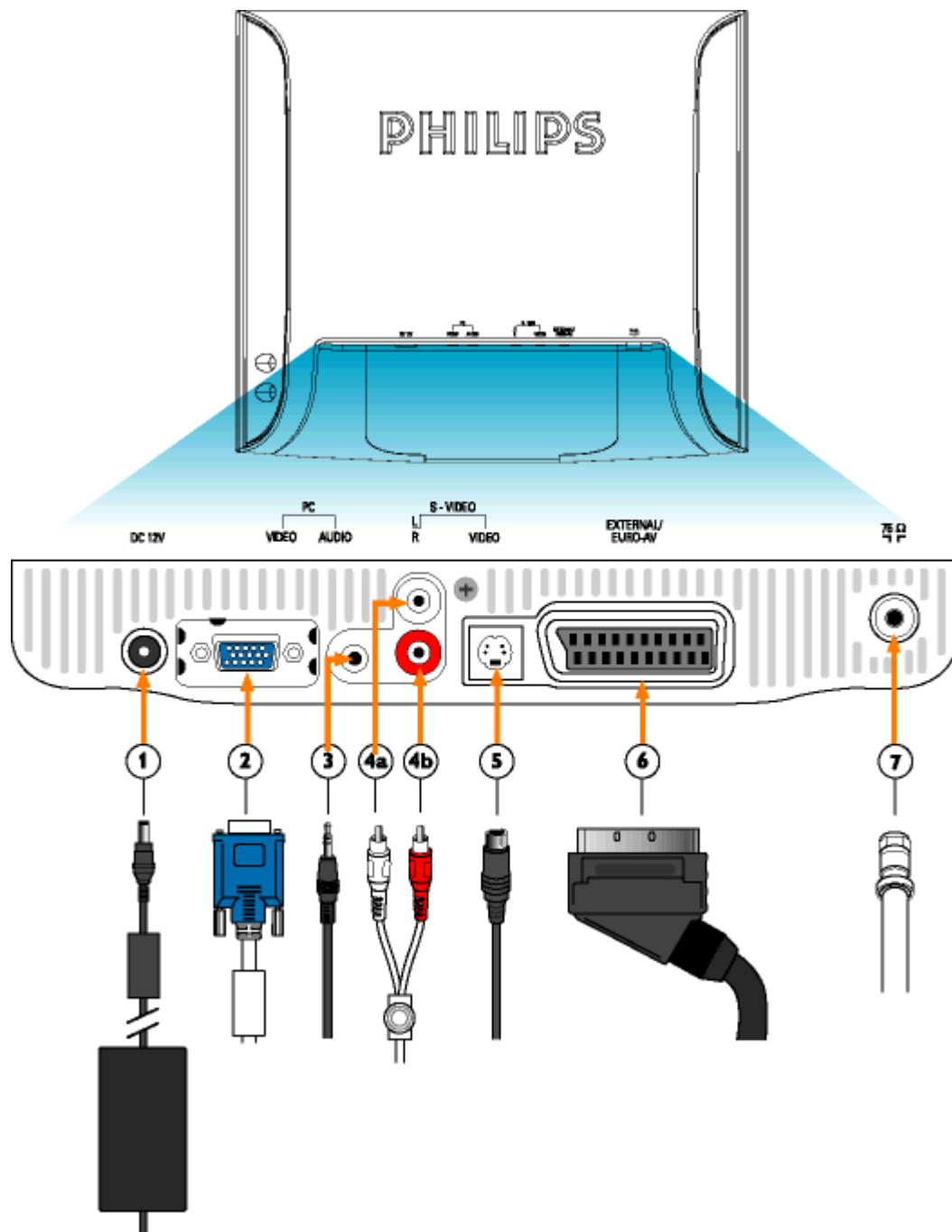
Side View



1. Headphone Jack
2. LINE OUT Jack

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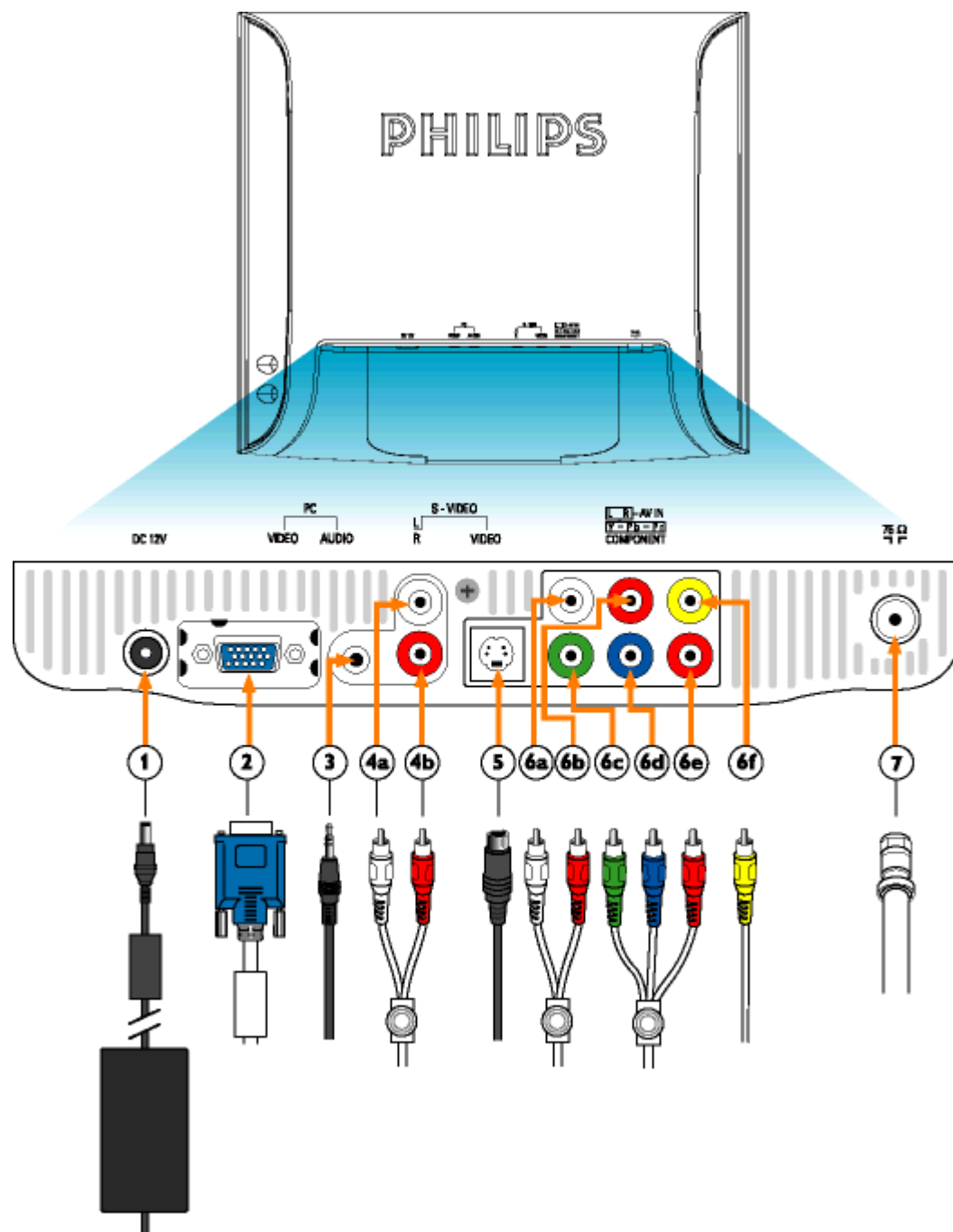
Rear View



(Europe)

- | | | |
|---|----------------------|------------------------------------|
| 1 | DC 12V | DC 12V power in |
| 2 | PC - Video | D-Sub input |
| 3 | PC - Audio | PC Stereo input |
| 4 | S-VIDEO (L) | AV audio (L) |
| | S-VIDEO (R) | AV audio (R) |
| 5 | S-VIDEO | S-VIDEO in |
| 6 | EXTERNAL/
EURO-AV | SCART connection (for Europe only) |
| 7 | 75 Ω | TV Antenna or CATV cable in |

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(North America and Asia Pacific)

- | | | |
|---|-------------|-----------------|
| 1 | DC 12V | DC 12V power in |
| 2 | PC - Video | D-Sub input |
| 3 | PC - Audio | PC Stereo input |
| 4 | S-VIDEO (L) | AV audio (L) |
| | S-VIDEO (R) | AV audio (R) |
| 5 | S-VIDEO | S-VIDEO in |
| 6 | L R - AV IN | 6a Audio (L) in |

	Y-Pb-Pr Component	6b Audio (R) in 6f CVBS in 6c, d, e Component video in TV Antenna or CATV cable in
7	75 	

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Optimizing Performance

- For best performance, ensure that your display settings are set at 1024x768@60Hz (for 15") or 1280x1600@60Hz (for 18").



Note: You can check the current display settings by pressing the "OK" button once. Go into the Product Information. The current display mode is shown on the item called RESOLUTION.

- You can also install the [Flat Panel Adjust \(FP Adjust\) program](#), a program for getting the best performance out of your monitor, included in this CD. A step-by-step instructions is provided to guide you through the installation process. Click on the link to know more about this program.

More about



[FP_setup02.exe](#)

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Regulatory Information

[TCO '95 Information](#) • [TCO Environmental Requirements](#) • [Energy Star Declaration](#) • [Federal Communications Commission \(FCC\) Notice \(U.S. Only\)](#) • [Commission Federale de la Comr \(FCC Declaration\)](#) • [EN 55022 Compliance \(Czech Republic Only\)](#) • [VCCI Class 2 Notice \(J MIC Notice \(South Korea Only\)](#) • [Polish Center for Testing and Certification Notice](#) • [North E Information](#) • [BSMI Notice \(Taiwan Only\)](#) • [Ergonomie Hinweis \(nur Deutschland\)](#) • [Philips E Disposal](#) • [Information for UK only](#)

[Safety and Troubleshooting](#) • [Troubleshooting](#) • [Other Related Information](#) • [Frequently Asked Questions \(FAQs\)](#)

TCO '95 Information



Congratulations!

You have just purchased a TCO'95 approved and labelled product! Your choice has provided a product developed for professional use. Your purchase has also contributed to reducing the impact on the environment and also, to the further development of environmentally adapted electronic products.

Why do we have environmentally labelled computers?

In many countries, environmental labelling has become an established method for encouraging the adaptation of goods and services to the environment. The main problem, as far as computer electronics equipment are concerned, is that environmentally harmful substances are used in the products and during the manufacturing. Since it has not been possible for the majority of electronic equipment to be recycled in a satisfactory way, most of these potentially damaging substances are discarded or later enter Nature. There are also other characteristics of a computer, such as energy consumption levels, that are important from the viewpoints of both the work (internal) and natural (external) environments. Since all methods of conventional electricity generation have a negative effect on the environment (acidic and climate-influencing emissions, radioactive waste, etc.), it is vital to reduce energy consumption. Electronics equipment in offices consume an enormous amount of energy since they are left running continuously.

What does labelling involve?

This product meets the requirements for the TCO'95 scheme which provides for international environmental labelling of personal computers. The labelling scheme was developed as a joint effort by the TCO (The Swedish Confederation of Professional Employees), Naturskyddsforeningen (The Swedish Society for Nature Conservation) and NUTEK (The National Board for Industrial and Environmental Development in Sweden). The requirements cover a wide range of issues: environment, ergonomics, usability, emission of electrical and magnetic fields, energy consumption and electrical and electronic waste. The environmental demands concern restrictions on the presence and use of heavy metals.

software. From indicated inactivity to Power Saving Position A2, the total time must not be set to more than 70 minutes.

NUTEK	VESA State	LED Indicator	Power Consumption
Normal operation	ON	Green	68 W (typical)
Power Saving Position A1	Suspend	Blinking Green	< 2 W
Power Saving Position A2	OFF	Blinking Green	< 2 W



As an ENERGY STAR® Partner, PHILIPS has determined that this product meets the ENERGY STAR® guidelines for energy efficiency.



We recommend you switch off the monitor when it is not in use for quite a long time.

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Federal Communications Commission (FCC) Notice (U.S. Only)



This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.



Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Use only RF shielded cable that was supplied with the monitor when connecting this monitor to a computer de

To prevent damage which may result in fire or shock hazard, do not expose this appliance to rain or excessive

THIS CLASS B DIGITAL APPARATUS MEETS ALL REQUIREMENTS OF THE CANADIAN INTERFERENCE EQUIPMENT REGULATIONS.

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Commission Federale de la Communication (FCC Declaration)



Cet équipement a été testé et déclaré conforme aux limites des appareils numériques de class B, aux termes de l'article 15 Des règles de la FCC. Ces limites sont conçues de façon à fournir une protection raisonnable contre les interférences nuisibles dans le cadre d'une installation résidentielle. CET appareil produit, utilise et peut émettre des hyperfréquences qui, si l'appareil n'est pas installé et utilisé selon les consignes données, peuvent causer des interférences nuisibles aux communications radio. Cependant, rien ne peut garantir l'absence d'interférences dans le cadre d'une installation particulière. Si cet appareil est la cause d'interférences nuisibles pour la réception des signaux de radio ou de télévision, ce qui peut être décelé en fermant l'équipement, puis en le remettant en fonction, l'utilisateur pourrait essayer de corriger la situation en prenant les mesures suivantes:

- Réorienter ou déplacer l'antenne de réception.
- Augmenter la distance entre l'équipement et le récepteur.
- Brancher l'équipement sur un autre circuit que celui utilisé par le récepteur.
- Demander l'aide du marchand ou d'un technicien chevronné en radio/télévision.



Toutes modifications n'ayant pas reçu l'approbation des services compétents en matière de conformité est susceptible d'interdire à l'utilisateur l'usage du présent équipement.

N'utiliser que des câbles RF armés pour les connections avec des ordinateurs ou périphériques.

CET APPAREIL NUMERIQUE DE LA CLASSE B RESPECTE TOUTES LES EXIGENCES DU REGLEMENT MATERIEL BROUILLEUR DU CANADA.

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EN 55022 Compliance (Czech Republic Only)

This device belongs to category B devices as described in EN 55022, unless it is specifically stated that it is a Class A device on the specification label. The following applies to devices in Class A of EN 55022 (radius of protection up to 30 meters). The user of the device is obliged to take all steps necessary to remove sources of interference to telecommunication or other devices.

Pokud není na typovém štítku počítače uvedeno, že spadá do do třídy A podle EN 55022, spadá automaticky do třídy B podle EN 55022. Pro zařízení zařazená do třídy A (chranné pásmo 30m) podle EN 55022 platí následující. Dojde-li k rušení telekomunikačních nebo jiných zařízení je uživatel povinen provést taková opatření, aby rušení odstranil.

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VCCI Notice (Japan Only)

Brief Description of Circuit Functions

1. General

1.1. Product description

The 18.1" LCD Monitor/TV is specified as a display peripheral with analog video signal input and include TV/Video function with 18.1" TFT LCD display. Horizontal scan range is 30 - 80KHz and refresh range is 56 - 75 Hz. This scan range allows it to display resolution up to 1280*1024 non-interlaced at 75 Hz refresh rate. The image can be adjust through OSD control , these adjustments can be stored on an board memory including 17 factory pre-set modes.

1.3. Basic data

1.3.1 LCD panel

Type NR.	: TX46D14VC0HAB(Hitachi)
Outside dimensions	: 389(H)*312(V)*27(D) mm
Pitch (mm)	: 0.2805 x 0.2805 mm
Color pixel arrangement	: RGB vertical stripes
Display surface	: Antiglare
Number of color	: 8-bit, 16,7M colors
Backlight	: 8 CCFL edge light
Active area(WxH)	: 359.0(H) x287.2 (V) mm (18.1" diagonal)
View angle	: Vertical 170 degree, Horizontal 170 degree (CR > 10)
Contrast ratio	: 300:1 (Typical)
White luminance	: 300 nits (Typical)

1.3.2. Power supply

AC-DC adapter : 12V/4500mA

Power consumption	:
Operating	< 68 W(typical)
Standby, off	<2W
DC power switch off	< 1W
Power cord length	: 1.8M

Power indicator	: LED (ON: green, Standby and OFF : blinking).
Auto power saving	: EPA, Nutek, VESA DPMS

1.3.3. Horizontal scan : 30 - 80 KHz

1.3.4. Vertical scan : 56 - 75 Hz

1.3.5. Input signals

1.PC Signal type

Analog Video : 0.7 Vp-p Linear , positive polarity

Sync : TTL level , separate , positive or negative polarity

TTL level , composite , positive or negative polarity

2.TV signal type

RF signal : Aerial input

Video signal : SCART input

S-Video input

Audio signal : S-video L/R audio input

PC line in

Scart audio line in

Audio line out

1.3.6 Input connectors

(1) Input analog D-sub connector pin assignment

PIN No.	SIGNAL
1	Red
2	Green/ sync on green
3	Blue
4	Sense (gnd)
5	GND
6	Red GND
7	Green GND
8	Blue GND
9	+5V
10	Sync GND
11	Sense (GND)
12	Bi-directional data
13	H/H+V sync
14	V-sync
15	Data clock

Signal interface

- 1.8M 15Pins, D-sub male with DDC2B Pin assignments

Sync polarity :

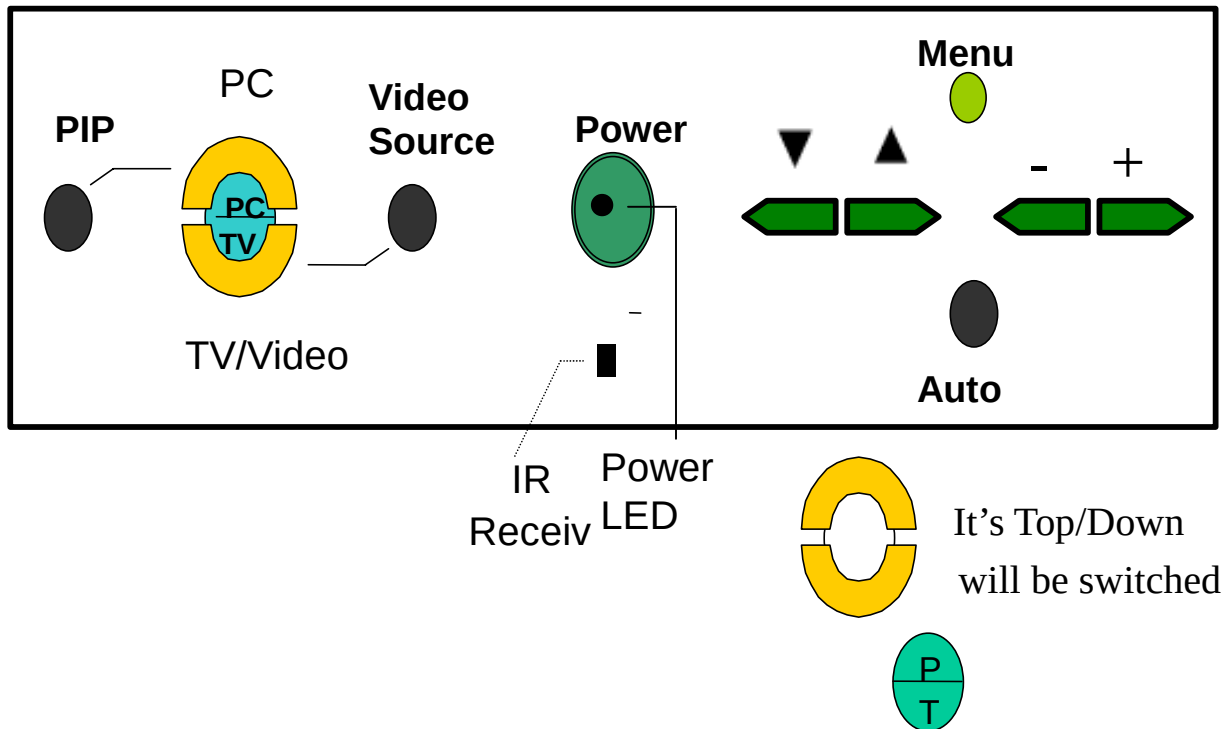
-Hori.sync positive/negative

-Vert.sync positive/negative

(2) Input SCART connector pin assignment

PIN No.	SIGNAL
1	Audio output B (right)
2	Audio input B (right)
3	Audio output A (left)
4	Ground (audio)
5	Ground (blue)
6	Audio input A (left)
7	Blue input
8	Function select
9	Ground (green)
10	Comms data 2
11	Green input
12	Comms data 1
13	Ground (red)
14	Ground (blanking)
15	Red input
16	RGB switching control
17	Ground (video input & output)
18	Ground (RGB switching control)
19	Video output (composite)
20	Video input (composite)
21	Common ground (shield)

Front Control



1.3.8 Key board control & definition

There are nine keys used in LCD monitor Plus

<A> <C> <D> <E> <F> <G> <H> <I>

Key name	Function	VGA mode	TV/video mode
<A>	Auto-adjustment	Auto-adjustment	NO Function
	PIP ON/OFF	PIP ON/OFF	No Function
<C>	Menu	Menu / Enter	Menu / Enter
<D>	Left/Volume down	Left/Volume down	Left/Volume down
<E>	Right/Volume up	Right/Volume up	Right/Volume up
<F>	Down/channel down	Down/	Down/Channel Down
<G>	Up/Channel up	Up/	Up/Channel up
<H>	TV source select	No Function	Source select
<I>	PC/TV	PC/TV select	PC/TV select

Note: <A>-<G> controlled by scaler MCU
 <H>-<I> controlled by A10 MCU

1.3.9 Resolution

(1) Factory Preset modes (17 modes)

#	Resolution	Frequency	Pixel rate	Sync	Comment
1	640X350	31.5K/70HZ	25.175	(+/-)	IBM VGA
2	720X400	31.5K/70HZ	28.322	(-/+)	IBM VGA
3	640X480	31.5K/60HZ	25.175	(-/-)	IBM VGA
4	640X480	35.0K/67HZ	30.24	(-/-)	MAC
5	640X480	37.9K/72HZ	31.5	(-/-)	VESA
6	640X480	37.5K/75HZ	31.501	(-/-)	VESA
7	800X600	35.2K/56HZ	36	(+/+)	VESA
8	800X600	37.9K/60HZ	40	(+/+)	VESA
9	800X600	48.1K/72HZ	50	(+/+)	VESA
10	800X600	46.9K/75HZ	49.498	(+/+)	VESA
11	832X624	49.7K/75HZ	57.28	(+/+)	MAC
12	1024X768	48.4K/60HZ	65	(-/-)	VESA
13	1024X768	56.5K/70HZ	75	(-/-)	VESA
14	1024X768	60.0K/75HZ	78.75	(+/+)	VESA
15	1152X870	68.7K/75Hz	100	(-/-)	MAC
16	1280X1024	64.0K/60Hz	108	(+/+)	VESA
17	1280X1024	80K/75Hz	135	(+/+)	VESA

1.3.10 Function block

TV / Video processing

- on A10 SSB , processing TV and video I/O signal to analog RGB output .

Video decoder

- SAA7118 , decoder analog RGB signal to CCIR 656 8 bit format digital Signal

De-interlace

- FLI2200 , further process the 8 bit CCIR 656 format digital signal and transfer to CCIR601 16 bit format digital signal output to Scaler IC

Scaler (JagASM)

a.) ADC

- brightness control
- contrast control
- R.G.B. sub contrast control
- sample the input video signal according to its pixel rate to form a digital data for format converter

b.) Format converter

- convert the data from ADC to a LCD panel acceptable data format
- zoom the input video to a full screen display

Microprocessor :
use two Microprocessor to communicate

Scaler MCU:

1. Scaler IC with A/D converter (Sage JAGASM.>digitized the VGA RGB signal. And format the digitized RGB signal to the data Format that LCD panel can accept.
 2. Auto size and phase clock adjustment.
 3. Back light brightness and on-off control.
 4. VGA mode detection and IC register setting.
 5. Video decoder SAA7118....> decode the R, G, B , Composite Sync. Signal from A10 and output to the De-interlace IC.
 6. FLI2200 de-interlace IC...>de-interlace the video signal.
- Keyboard control : Up , Down , Left , Right , Enter , Auto , PIP ON/OFF

A10 MCU:

1. RC remote control
 2. Keyboard control : PC/TV select , TV/Video source select
 3. TV source select and small signal process control.
 4. Power LED control.
 5. TV/Video LED control
 6. Power management
- Two CPU communication

Inverter

- accept +12 V DC voltage
- output 1700 Vrms AC voltage to CCFL (Cold Cathode Fluorescent Tube, backlight)

Power supply

- AC adapter : the AC power input from 90 V AC to 264 V AC, can generate 12V / 6A DC power
- DC DC converter : convert 12 V to 5 V , 8V , 3.3 V , 2.5V to system