

HITACHI

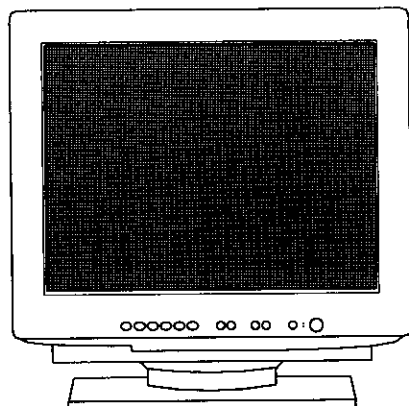
COLOUR MONITOR

CM811ET
CM812ET
CM813ET

USER MANUAL	3
BEDIENUNGSANLEITUNG...	19
MANUAL DE USUARIO...	33
MANUALE D'USO...	47
MANUEL UTILISATEUR...	61

with **EasyMenu** !

EasyMenu is HITACHI's On Screen Display function for easy operation.



**READ THE INSTRUCTIONS INSIDE CAREFULLY.
 KEEP THIS USER MANUAL FOR FUTURE REFERENCE.**

For future reference, record the serial number of your colour monitor.

SERIAL No. _____

The serial number is located on the rear of the monitor.

This monitor is ENERGY STAR® compliant when used with a computer equipped with VESA DPMS.

The ENERGY STAR® emblem does not represent EPA endorsement of any product or service.

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



NOTE:

The information in this manual is subject to change without notice. The manufacturer assumes no responsibility for any errors that may appear in this manual.

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VESA is a trademark of a nonprofit organization, Video Electronics Standard Association.
ENERGY STAR® is a trademark of Environmental Protection Agency (EPA).

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VGA ist ein eingetragenes Warenzeichen der International Business Machines Corporation.
VESA ist ein Warenzeichen der Video Electronics Standard Association, einer Organisation ohne Erbschaftscharakter.
ENERGY STAR® ist ein Warenzeichen der Environmental Protection Agency (EPA).

NOTA:

La información contenida en este manual está sujeta a cambios sin previo aviso. El fabricante no se responsabiliza de los errores que puedan aparecer en este manual.

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VGA es una marca registrada de International Business Machines Corporation.
VESA es una marca registrada de una organización sin ánimo de lucro, Video Electronics Standard Association.
ENERGY STAR® es una marca de Environmental Protection Agency (EPA).

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VESA est la marque d'une organisation sans but lucratif, la Video Electronics Standard Association.
ENERGY STAR® est une marque de l' EPA (Environmental Protection Agency, USA).

TCO'95 STATEMENT

Congratulations!

You have just purchased a TCO'95 approved and labelled product! Your choice has provided you with a product developed for professional use. Your purchase has also contributed to reducing the burden on the environment and also, to the further development of environmentally adapted electronics 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 computers and other electronics equipment are concerned, is that environmentally harmful substances are used both in the products and during the manufacturing. Since it has not been possible for the majority of electronics equipment to be recycled in a satisfactory way, most of these potentially damaging substances sooner 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 conserve energy. Electronics equipment in offices consume an enormous amount of energy since they are often left running continuously.

What does labelling involve?

This product meets the requirements for the TCO'95 scheme which provides for international and 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 Technical 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 fire safety.

The environmental demands concern restrictions on the presence and use of heavy metals, brominated and chlorinated flame retardants, CFCs (freons) and chlorinated solvents, among other things. The product must be prepared for recycling and the manufacturer is obliged to have an environmental plan which must be adhered to in each country where the company implements its operational policy.

The energy requirements include a demand that the computer and/or display, after a certain period of inactivity, shall reduce its power consumption to a lower level in one or more stages. The length of time to reactivate the computer shall be reasonable for the user.

Labelled products must meet strict environmental demands, for example, in respect of the reduction of electric and magnetic fields, physical and visual ergonomics and good usability.

On the back page of this folder, you will find a brief summary of the environmental requirements met by this product. The complete environmental criteria document may be ordered from:

TCO Development Unit

S-114 94 Stockholm
Sweden

Fax: +46 8 782 92 07

Email (Internet): development@tco.se

Current information regarding TCO'95 approved and labelled products may also be obtained via the Internet, using the address:

<http://www.tco-info.com/>

TCO'95 is a co-operative project between TCO (The Swedish Confederation of Professional Employees), Naturskyddsforeningen (The Swedish Society for Nature Conservation) and NUTEK (The National Board for Industrial and Technical Development in Sweden).

Environmental Requirements

Brominated flame retardants

Brominated flame retardants are present in printed circuit boards, cables, wires, casings and housings. In turn, they delay the spread of fire. Up to thirty percent of the plastic in a computer casing can consist of flame retardant substances. These are related to another group of environmental toxins, PCBs, which are suspected to give rise to similar harm, including reproductive damage in fish-eating birds and mammals, due to the bio-accumulative¹⁾ processes. Flame retardants have been found in human blood and researchers fear that disturbances in foetus development may occur.

TCO'95 demand requires that plastic components weighing more than 25 grams must not contain organically bound chlorine and bromine.

Lead²⁾

Lead can be found in picture tubes, display screens, solders and capacitors. Lead damages the nervous system and in higher doses, causes lead poisoning.

TCO'95 requirement permits the inclusion of lead since no replacement has yet been developed.

Cadmium²⁾

Cadmium is present in rechargeable batteries and in the colour-generating layers of certain computer displays. Cadmium damages the nervous system and is toxic in high doses.

TCO'95 requirement states that batteries may not contain more than 25 ppm (parts per million) of cadmium. The colour-generating layers of display screens must not contain any cadmium.

Mercury²⁾

Mercury is sometimes found in batteries, relays and switches. Mercury damages the nervous system and is toxic in high doses.

TCO'95 requirement states that batteries may not contain more than 25 ppm (parts per million) of mercury. It also demands that no mercury is present in any of the electrical or electronics components concerned with the display unit.

CFCs (freons)

CFCs (freons) are sometimes used for washing printed circuit boards and in the manufacturing of expanded foam for packaging. CFCs break down ozone and thereby damage the ozone layer in the stratosphere, causing increased reception on Earth of ultraviolet light with consequent increased risks of skin cancer (malignant melanoma).

The relevant TCO'95 requirement: Neither CFCs nor HCFCs may be used during the manufacturing of the product or its packaging.

¹⁾ Bio-accumulative is defined as substances which accumulate within living organisms

²⁾ Lead, Cadmium and Mercury are heavy metals which are Bio-accumulative.

CONTENTS

FEATURES.....	3
CAUTIONS.....	4
INSTALLATION.....	8
STANDARD SETTINGS.....	10
OPERATION.....	11
POWER SAVING SYSTEM.....	17
PLUG & PLAY.....	17
SPECIFICATIONS.....	18

FEATURES

The following features are provided by the Colour Monitor.

Sharpest Focus and Highest Contrast

Flat screen CRT with anti-glare, dynamic focus circuit, dark glass, and an INVAR shadow mask gives the sharpest focus and highest contrast to minimize eye fatigue.

Wide-range Multi-Scanning

Automatic scanning and automatic adjustment to conform with a wide range of scanning frequencies and user requirements.

Digital Picture Control Function

Position, size, rotation, pincushion, trapezoid, right pincushion and right trapezoid are adjustable by digital controls.

Geometry setting can be stored for different H/V frequencies. Microprocessor-based preset functions can store 26 sets of geometry settings including the standard factory settings.

Digital Colour Control Function

Red, green, and blue colour balance is adjustable by digital control.

An adjusted colour setting can be stored and recalled by the colour select button.

Power Saving System

The Environmental Protection Agency (EPA) has established a voluntary program by which manufacturers enable computer products to go into low power states while not being used. This monitor has a low power "sleep" mode, which is compliant with the EPA requirements for the ENERGY STAR[®] program, and will assist you in conserving energy.

Please refer to the section of "POWER SAVING SYSTEM" for details.

EasyMenu

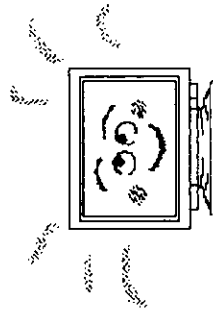
An On Screen Display function that allows direct access to adjust all operations from the front switches.

Moire Reduction

This monitor has horizontal and vertical moire reduction function.

PLUG & PLAY

This monitor is VESA DDC1/2B compliant when used with a computer compliant with VESA DDC (Display Data Channel).



CAUTIONS

NEVER REMOVE THE REAR COVER !

The rear cover MUST be removed only by authorized service personnel. This colour monitor contains high voltage components.

THE RECEPTACLE SHOULD BE CLOSE TO THE MONITOR AND EASILY ACCESSIBLE !

INSTALL THE UNIT IN AN SUITABLE ENVIRONMENT !

DO NOT expose this monitor to rain or moisture to prevent electric shock or fire hazard. This unit is designed to be used in an office or business environment. DO NOT subject the unit to vibrations, dust, or corrosive gases.

KEEP IN A WELL VENTILATED PLACE !

DO NOT cover this monitor or place anything against any sides (not only the top, right and left side but also the rear and bottom side) of unit. Ventilation holes are provided at all sides of the rear cover to prevent the temperature from rising.

KEEP AWAY FROM HEAT SOURCES !

Avoid placing the unit in direct sunshine or near a heating appliance.

BE CAREFUL OF MAGNETIC FIELDS !

DO NOT place a magnet, loudspeaker system, floppy disk drive, printer, or anything which will generate magnetism near the unit. A magnetic field may cause blurred colours or distortion of the displayed pattern.

BE CAREFUL OF GENERATED MAGNETISM !

After the power has been turned on or "DEGAUSS" button has been pressed, the CRT is demagnetized for approximately 10 seconds. This generates a strong magnetic field around the front cover which may affect the data stored on magnetic tape or disks near the front cover. Place such magnetic recording equipment and tapes/disks away from this unit.

AMBIENT ILLUMINATION

Avoid direct rays of the sun or room lighting onto the CRT screen in order to prevent eye fatigue.

THE ENCLOSED POWER CORD MUST BE USED !

In Europe, a proper European standard approved power cord is to be used with this monitor. For a rated current up to 6 A, a type not lighter than H05VV-F 3G 0.75 mm² or H05VVH2-F 3G 0.75 mm² must be used.

In USA/Canada, use a UL LISTED/CSA LABELLED or CERTIFIED power cord set meeting the following specifications

Rating: min. 125V, 7A

Length: max. 3.0m

Type: SVT or SJT

Plug type: NEMA 5-15P figure, Parallel blade, Grounding type

Failure to do so may cause fire or electric shock hazard.

USE ONLY THE CORRECT VOLTAGE POWER OUTLET WITH SAFETY GROUND CONNECTION !

100 - 120 V for USA, Canada, etc.

200 - 240 V for Europe, etc.

(This monitor will automatically adjust to the input voltage 100 - 120 / 200 - 240V)

CAUTION for 200 - 240V operation only

This equipment relies on the protective devices in the building installation for short-circuit and over-current protection. Refer to the following table for the suitable number and location of the protective devices which should be provided in the building installation.

Protective devices in single - phase equipment or sub - assemblies

	Protection against	Minimum number of fuses or circuit-breaker poles	Location
Equipment to be connected to POWER SYSTEMS with earthed neutral reliably identified	Earth faults	1	Both conductors
	Over-current	1	Either of the two conductors
Equipment to be connected to any supply, including IT POWER SYSTEMS and supplies with reversible plugs	Earth faults	2	Both conductors
	Over-current	1	Either of the two conductors

Verify that the protective devices in the building installation meets the conditions in the table prior to installing the equipment.

BE CAREFUL OF POWER CORD CONNECTION !

Before inserting the plug of the power cord into a receptacle of the correct voltage, check that the connection portion of the power cord is clean (with no dust). Then, insert the plug of power cord to a receptacle firmly, otherwise it may cause electrical shock or fire.

REMOVE THE POWER CORD FOR COMPLETE SEPARATION !

For complete separation from the power source, remove the power cord from the monitor or from the wall outlet.

AVOID FREQUENT POWER ON-OFF SWITCHING !

DO NOT repeat OFF and ON in a short period. It may cause blurred colours or distortion of the displayed pattern.

BE CAREFUL OF STATIC ELECTRICITY ON CRT SURFACE !

To prevent electrical shock by the static electricity on the CRT surface, disconnect the power cord at least 30 SECONDS AFTER turning off the power.

ABOUT CLEANING

This monitor has a non-glare and anti-electrostatic treatment on the surface of the screen. Use water or alcoholic solvent with soft cloth like gauze to clean the surface of the screen. NEVER use abrasive, glass cleaner containing highly concentrated ammonia and strong base chemicals since they damage the surface treatment.

Clean the cabinet and controls with a lightly moistened soft cloth.

DO NOT use aerosol sprays, solvents or abrasive cleaners.

■ FOR THE CUSTOMERS IN THE U.K.

THIS PRODUCT IS SUPPLIED WITH A TWO PIN MAINS PLUG FOR USE IN MAINLAND EUROPE. FOR THE U.K. PLEASE REFER TO THE NOTES ON THIS PAGE.

IMPORTANT FOR UNITED KINGDOM

WORDING FOR CLASS I EQUIPMENT INSTRUCTION BOOKS AND LABELS

The mains lead on this equipment is supplied with a moulded plug incorporating a fuse, the value of which is indicated on the pin face of the plug. Should the fuse need to be replaced, an ASTA or BSI approved BS 1362 fuse must be used of the same rating. If the fuse cover is detachable never use the plug with the cover omitted. If a replacement fuse cover is required, ensure it is of the same colour as that visible on the pin face of the plug. Fuse covers are available from your dealer.

DO NOT cut off the mains plug from this equipment. If the plug fitted is not suitable for the power points in your home or the cable is too short to reach a power point, then obtain an appropriate safety approved extension lead or consult your dealer.

Should it be necessary to change the mains plugs, this must be carried out by a competent person, preferably a qualified electrician.

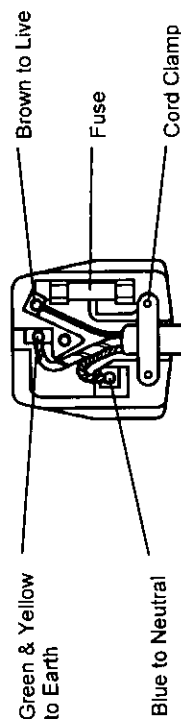
If there is no alternative to cutting off the mains plug, ensure that you dispose of it immediately, having first removed the fuse, to avoid a possible shock hazard by inadvertent connection to the mains supply.

WARNING: THIS EQUIPMENT MUST BE EARTHED

IMPORTANT

The wires in the mains lead are coloured in accordance with the following code:

Green and Yellow = Earth, Blue = Neutral, Brown = Live.



As these colours may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire which is coloured GREEN and YELLOW must be connected to the terminal in the plug which is marked with the letter E or by the earth symbol $\oplus$ or coloured GREEN or GREEN and YELLOW.

The wire coloured BLUE must be connected to the terminal marked with the letter N or coloured BLUE or BLACK. The wire coloured BROWN must be connected to the terminal marked with the letter L or coloured BROWN or RED.

■ FCC (Federal Communications Commission) STATEMENT WARNING

WARNING : 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.

Instructions to Users : This equipment complies with the requirements of FCC (Federal Communication Commission) equipments provided that following conditions are met.

(1) Power cord : Unshielded power cord must be used.

(2) Video inputs : The input signal amplitude must not exceed the specified level.

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

Declaration of Conformity

According to 47CFR, Part 2 and 15 for
Class B Personal Computers and
Peripherals; and / or

CPU Boards and Power Supplies used
with Class B Personal Computers:

We: Nissei Sangyo America, Ltd.

Located at: 200 Lower Brook Drive Suite 2200, Westwood, MA. 02090-1124
U.S.A.

Declare under sole responsibility that the product identified herein, complies with 47CFR Part 2 and 15 of the FCC rules as a Class B digital device. Each product marketed, is identical to the representative unit tested and found to be compliant with the standards. Records maintained continue to reflect the equipment being produced can be expected to be within the variation accepted, due to quantity production and testing on a statistical basis as required by 47CFR § 2.909. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation. The above named party is responsible for ensuring that the equipment complies with the standards of 47CFR § 15.101 to 15.109.

Trade name: Color Monitor

Model Number: CM811/CM812

Signature of Party Responsible:

Printed name of Party Responsible: Satoshi Tanabe

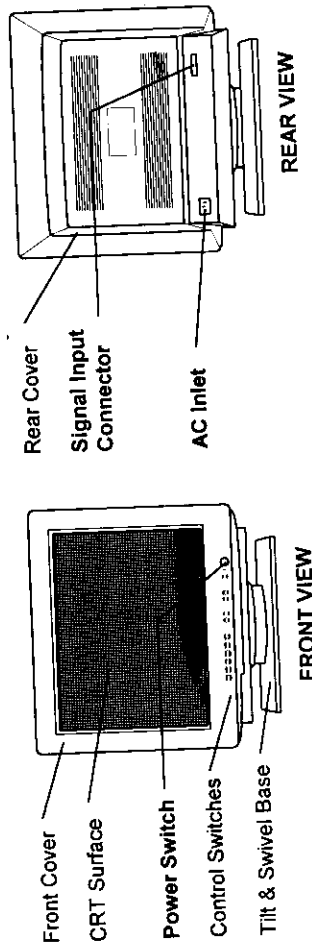
Executed on (Date), at (Place): April 10, 1998, MA., U.S.A.

■ FOR THE CUSTOMERS IN CANADA

NOTICE : This Class B digital apparatus complies with ICES-003.

INSTALLATION

Install the monitor in the following way, taking care to maintain safety.



1. Installation

Install the monitor on a horizontal base.

2. Power Cord Connection

① Make sure of using the power cord meeting the safety standard of the country in which you are using the monitor.

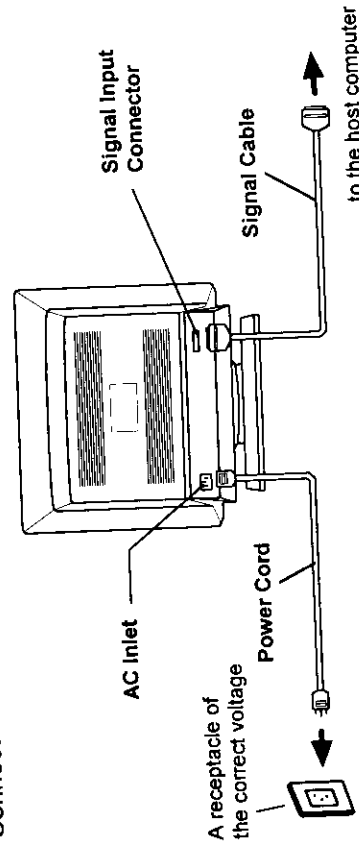
② Insert the connector of a power cord to the AC Inlet of the monitor.

③ Insert the plug of the power cord to a receptacle of the correct voltage.

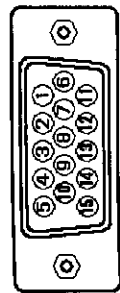
3. Signal Cable Connection

① Insert the connector of a signal cable to the Signal Input Connector of the monitor, with attention to the suitability, and secure the screws on the connector shell firmly.

② Connect the another connector of the signal cable to the host computer.



● Use a signal cable with the D-Sub Mini 15-pin Connector.



Pin No.	Signal
1	Red Video
2	Green Video (Sync. optional)
3	Blue Video
4	No Pin
5	No connection
6	Red Ground
7	Green Ground
8	Blue Ground
9	No connection
10	Ground
11	No connection
12	Bi-directional Data [SDA]
13	H.Sync. (or HV)
14	V.Sync. [VCLK]
15	Data Clock [SCL]

● If the graphics board supplies more than one type of sync. signal, the sync. signal type will be automatically selected by the monitor, with the priority shown in the following table.

Sync. Signal Type	Priority
H. V Separate Sync.	1
H/V Composite Sync.	2
Sync. on Green Video	3

4. Power On

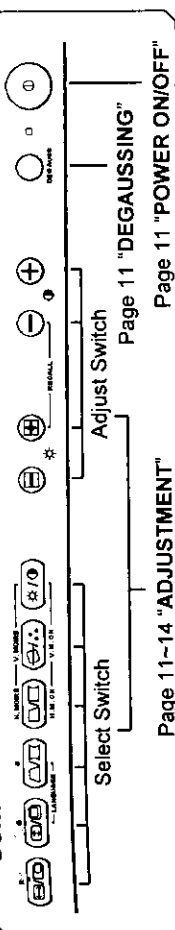
Turn on the Power Switch of the monitor first, then the computer. Refer to Page 11 "POWER ON/OFF".

NOTICE :

- After turning OFF the switch, wait at least 5 seconds to restart the monitor. Otherwise the monitor may operate unusually.
- If the picture doesn't appear, turn OFF the power switch, make sure of the following and wait at least 30 seconds to restart the monitor. Make sure the power switch of the computer, power cord connection, signal cable connection and the input sync. signal are right.
- If the Colour is impure on the screen after turning ON the monitor, wait for about 10 minutes and press the Degauss button.

OPERATION

Control Switches



POWER ON/OFF

Press the Power switch, to switch the power ON or OFF.

- When power is ON, the power LED lights.

DEGAUSSING

Press the switch "DEGAUSS", to degauss manually.

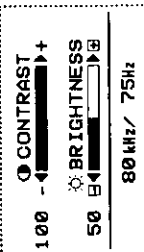
- Use this function only when you see colour impurities on the screen after turning ON the monitor. Remember, the monitor is automatically degaussed during initial power on.
- Wait for about 10 minutes before repeating the function.

ADJUSTMENT

Press the select switch of the item you want to adjust. Then you can adjust by the adjust switches shown in following tables.

- You can store the adjusted condition. Refer to Page 15 "STORE".

- The On Screen Display function of "EasyMenu" shows selected items and adjusting conditions. You can select the EasyMenu Language. See the table below.



Sample of "EasyMenu"

Item	Select Switch	Adjust Switch	Function
Language Select	(F1) and (F2) simultaneously.	(+) (-)	changes the language to the next mode. ENGLISH → DEUTSCH → ESPAÑOL → ITALIANO → FRANÇAIS changes the language to the previous mode. FRANÇAIS → ITALIANO → ESPAÑOL → DEUTSCH → ENGLISH

STANDARD SETTINGS

Microprocessor-based preset functions can store 26 sets of geometry settings including the standard settings. The following industrial standard settings have been pre-programmed by the factory.

No.	Video Mode Name (with Resolution and Vertical Frequency)	Horizontal Frequency	Video Mode	CM811ET	CM812ET	CM813ET
1	VGA 640 X 400 - 70 Hz	31.47 kHz	VGA	✓	✓	✓
2	VESA 800 X 600 - 85 Hz	53.67 kHz	VESA	✓	✓	✓
3	VESA 1024 X 768 - 85 Hz	68.68 kHz	VESA	✓	✓	✓
4	Apple 1150 X 870 - 75 Hz	68.68 kHz	Macintosh 21 Color	✓	—	—
5	VESA 1280 X 1024 - 85 Hz	91.15 kHz	VESA	✓	✓	✓
6	VESA 1600 X 1200 - 75 Hz	93.75 kHz	VESA	✓	—	—
7	VESA 1600 X 1200 - 85 Hz	106.25 kHz	VESA	—	✓	—
8	VESA 1600 X 1200 - 90 Hz	112.50 kHz	VESA	—	—	✓

NOTE :

- Input signals with approximately the same frequencies may be regarded as the same signal.

- The following horizontal timing conditions are recommended (at sync. H, V separate or HV composite).

for 31 kHz - 55 kHz horizontal frequency:

Horizontal front porch should be more than 0.1 μ s.

Horizontal sync. width should be within 1.0 - 3.8 μ s.

Horizontal back porch should be more than 1.2 μ s.

Horizontal blanking width should be more than 3.5 μ s.

for 55 kHz - 115 kHz horizontal frequency:

Horizontal front porch should be more than 0.1 μ s.

Horizontal sync. width should be within 0.8 - 3.0 μ s.

Horizontal back porch should be more than 1.1 μ s.

Horizontal blanking width should be more than 2.4 μ s.

The following vertical timing conditions are recommended.

Vertical front porch should be more than 9 μ s.

Vertical sync. width should be less than 100 μ s.

Vertical back porch should be more than 400 μ s.

Vertical blanking width should be more than 450 μ s.

- In case the front or back porch is extremely long, or the data display time is extremely short, it may not be able to set the expected size and position.

- Standard settings are subject to change without notice.

- This monitor is tested and conformed compliance with ZH1/618 and EN29241-3

- (ISO9241-3) ergonomics requirement on the following video modes :

"VESA 1024 X 768 - 85 Hz"

"VESA 1280 X 1024 - 85 Hz"

"VESA 1600 X 1200 - 85 Hz" (CM812ET only)

ADJUSTMENT (Continue)

Item	Select Switch	Adjust Switch		Function
Color Select				changes the colour to the next mode. No.1:9300K → No.2:6500K → No.3:5000K → No.4:USER (if available)
				changes the colour to the previous mode. No.4:USER (if available) → No.3:5000K → No.2:6500K → No.1:9300K
Color Balance	Red			makes the Red stronger. When the Red reaches the upper limit, it makes the Green and Blue weaker.
				makes the Green and Blue stronger. When the Green or Blue reaches the upper limit, it makes the Red weaker.
	Green			makes the Green stronger. When the Green reaches the upper limit, it makes the Blue and Red weaker.
				makes the Blue and Red stronger. When the Blue or Red reaches the upper limit, it makes the Green weaker.
	Blue			makes the Blue stronger. When the Blue reaches the upper limit, it makes the Red and Green weaker.
Color Reset				makes the Red and Green stronger. When the Red or Green reaches the upper limit, it makes the Blue weaker.
				cancels the currently adjusted colour, and calls the colour condition of the previously selected colour mode.

■ When EasyMenu is not shown, you can start the adjustment of Contrast and Brightness only, without pressing any select switch.

■ It is recommended to follow the following procedures for the adjustment of distortions;

(1) "Rotation"

(2) "Pincushion" and "Trapezoid" (Adjust the left side.)

(3) "Right Pincushion" and "Right Trapezoid" (Adjust the right side.)

■ The mode "No.4:USER" is not factory set, and it is programmable if desired.

After adjustment of "Color Balance" (Red, Green or Blue) and "STORE" (refer to page 15), your colour balance will be restored by selecting "No.4:USER".

ADJUSTMENT (Continue)

Item	Select Switch	Adjust Switch		Function
Contrast				makes Contrast brighter excluding background.
				makes Contrast darker excluding background.
Brightness				makes Brightness brighter including background.
				makes Brightness darker including background.
H. Position				moves the position to the right.
				moves the position to the left.
H. Size				expands horizontally.
				shrinks horizontally.
V. Position				moves the position up.
				moves the position down.
V. Size				expands vertically.
				shrinks vertically.
Rotation				rotates clockwise.
				rotates counter clockwise.
Pincushion				curves the left/right sides outwards.
				curves the left/right sides inwards.
Trapezoid				expands the top side, and shrinks the bottom side.
				shrinks the top side, and expands the bottom side.
Right Pincushion				curves the right side outwards.
				curves the right side inwards.
Right Trapezoid				expands the right top side, and shrinks the right bottom side.
				shrinks the right top side, and expands the right bottom side.

STORE

You can store your settings automatically when the EasyMenu is disappeared.

Item	Storing Condition	Restoring Condition
H.Position H.Size V.Position V.Size Pincushion Trapezoid Right Pincushion H.Moire Reduction V.Moire Reduction	One setting is allowed for each video mode. You can store maximum 26 sets of geometry settings including the standard settings (refer to page 10 "STANDARD SETTINGS"). ■ If your store is at its maximum already, storing a setting for new video mode overwrites the oldest user setting. ■ The video mode is distinguished by the horizontal/vertical frequency and polarity of the horizontal/vertical sync. signal. When the video modes are almost similar in these factors, however, the video modes may not be discriminated as different.	When the monitor detects the same video mode.
Color Balance (Red, Green, Blue)	One setting is allowed to the Colour balance "No.4:USER".	When the colour balance "No.4:USER" is selected.
Rotation	One setting is allowed.	When the monitor detects a valid signal.
Contrast Brightness Color Select Language Select	One setting is allowed. ■ It is normally not necessary to store them manually. No operation of about 8 seconds stores the currently adjusting data of these items, automatically.	

RECALL

To select the factory preset for the current video mode, press and simultaneously and hold for two seconds. (No other user settings are deleted.) The user can then restore new data if required.

RESET

To reset all user stored settings, turn ON the Power switch while pressing and simultaneously. All user stored settings for each video mode, will be deleted when recalling the factory presets. The user can then restore new data if required.

ADJUSTMENT (Continue)

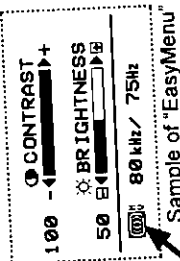
Item	Select Switch	Adjust Switch		Function
H. Moire Reduction	and simultaneously.			operates the horizontal moire changing circuit.
				stops the horizontal moire changing circuit.
				makes the operation of the horizontal moire changing circuit stronger.
				makes the operation of the horizontal moire changing circuit weaker.
V. Moire Reduction	and simultaneously.			operates the vertical moire changing circuit.
				stops the vertical moire changing circuit.
				makes the operation of the vertical moire changing circuit stronger.
				makes the operation of the vertical moire changing circuit weaker.

■ Moire may appear on the screen due to interference between CRT dot pitch and video signal by conditions of video image, display size, display brightness, etc. Adjust the conditions of display size, display brightness, etc., before the adjustment of moire.

■ In some cases, this function may cause deterioration of display quality, such as focus, jitter, etc.

■ The condition of the moire changing circuit will be indicated by pressing any switch (Select Switch or Adjust Switch), as the following.

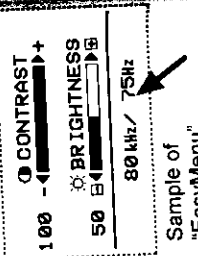
Indicated symbol	Moire changing circuit condition	
	Horizontal	Vertical
	ON	ON
	ON	OFF
	OFF	ON
not indicated	OFF	OFF



SIGNAL CHECK

To refer to the input signal condition, press any switch (Select Switch or Adjust Switch). The horizontal frequency and vertical frequency will be indicated.

- Precision frequency, ± 2 kHz
- Horizontal approximately ± 2 Hz
- Vertical approximately ± 2 Hz



AUTOMATIC SIGNAL CHECK

When the monitor has detected the change of the signal input condition, the monitor will indicate the condition automatically, as follows.

Condition	Indication
When the monitor detects no sync. signal.	The EasyMenu indicates the message "POWER SAVE" for 5 seconds. ■ Verify power switch of the computer and cable connection.
When the monitor will go into the power saving mode. (Refer to page 17)	The LED of the power switch (○) flashes. ■ Verify power switch of the computer and cable connection.
When the monitor detects a sync. signal which is out of set-up specification or is unstable.	The EasyMenu indicates the message "INVALID SCAN FREQ." ■ Verify the specification of input signal.

VIDEO MUTING

When the monitor has detected the change of the signal input condition, the monitor mutes the picture automatically. This function hides scrambled images which may appear during the changing period of the input signal. The muting period depends on the time that takes until the replaced signal becomes stable.

POWER SAVING SYSTEM

This monitor complies with VESA and ENERGY STAR® power saving requirements. The power saving system works only when used with VESA DPMS compliant PC's and/or graphic controllers.

- When to switch the power OFF during the monitor is in OFF mode, sometimes LED flashing continues a few seconds. It is not failure.

VESA DPMS				Power Saving States	
Mode	Video	H. Sync.	V. Sync.	Power	Power LED
ON	Active	Yes	Yes	125 W (typical)	Lighting Green
Stand-by	Blanked	No	Yes	less than 15 W	Flashing quickly
Suspend	Blanked	Yes	No		
OFF	Blanked	No	No	less than 5 W	Flashing Slowly

PLUG & PLAY

This monitor complies with VESA DDC1/2B specifications. Plug & Play is a system with computer, peripherals (including monitors), and operating system. It works when the monitor is connected to DDC ready computer that is running an operating system software that incorporates plug & play functionality.



SPECIFICATIONS

ENGLISH

CRT

21 inch picture tube, 0.22 mm horizontal dot pitch (0.21 mm horizontal mask pitch), Invar shadow mask, Black matrix, Short persistence phosphors, New Anti-Reflection coat.

Input Signal

Video : 0.70 Vp-p, Analogue
Sync. : Separate H/V, TTL level
Composite H/V, TTL level
Sync. on Green at 0.30 Vp-p

Synchronisation

	CM811ET	CM812ET	CM813ET
Horizontal	31 - 96 kHz	31 - 107 kHz	31 - 115 kHz
Vertical	50 - 160 Hz	50 - 160 Hz	50 - 160 Hz

Resolution

Horizontal : 1600 dots (max.)
Vertical : 1280 lines (max.)

Video Clock frequency

	CM811ET	CM812ET	CM813ET
200 MHz		230 MHz	250 MHz
(typical)		(typical)	(typical)

Viewable Image Size

20.0 inches (508 mm), diagonal (typical)

Viewable Image Area

Horizontal : 406 mm (typical)
Vertical : 305 mm (typical)

Colour Temperature

Standard Colour Balance 1 : 9300K
Standard Colour Balance 2 : 6500K
Standard Colour Balance 3 : 5000K
Colour Balance 4 : User defined

Warm-up Time

30 minutes to reach optimum performance level.

Power Supply

AC 100 - 120 / 200 - 240 V, automatically selected.
Power Consumption : 125 W (typical)
Provided with power save circuit.

Dimensions

488 (W) × 482 (H) × 470 (D) mm
(including Tilt & Swivel Base)

Weight

27.5 kg (approx.)
(including Tilt & Swivel Base)

Environmental Condition

	Operation	Storage
Temperature	5°C to 40°C	-20°C to 60°C
Humidity	10% to 80%	10% to 90%

Specification and Design are subject to change without notice.

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QR27211