20.1” Military Grade Display

Model: R20L100-RKA2ML

User’s Manual

Winmate Communication INC.

May, 2011

IMPORTANT SAFETY INSTRUCTIONS

- Please read these instructions carefully before using the product and save for later reference. Follow all warnings and instructions marked on the product.
- Unplug this product from the wall outlet before cleaning. Clean the product with a damp soft cloth. Do not use liquid or aerosol cleaners as it may cause permanent damage to the screen.
- Do not use this product near water.
- Do not place this product on an unstable cart, stand, or table.
- The product may fall, causing serious damage to the product.
- Slots and openings in the cabinet and the back or bottom are provided for ventilation; to ensure reliable operation of the product and to protect it from overheating, these openings must not be blocked or covered.
- The openings should never be placed near or over a radiator or heat register, or in a built-in installation unless proper ventilation is provided.
- This product should be operated from the type of power indicated on the marking label.
- If you are not sure of the type of power available, consult your dealer or local power company.
- This product is equipped with a 3-wire grounding type plug, a plug having a third (grounding) pin.
- This plug will only fit into a grounding-type power outlet.
- This is a safety feature.
- If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet.
- Do not defeat the purpose of the grounding-type plug.
- Do not allow anything to rest on the power cord.
- Do not locate this product where persons will walk on the cord.
- If an extension cord is used with this product, make sure that the total of the ampere ratings on the products plugged into the extension cord does not exceed the extension cord ampere rating.
- Also make sure that the total of all products plugged into the wall outlet does not exceed 15 amps.
- Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a risk

of fire or electric shock.

- Never spill liquid of any kind on the product.
- Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous voltage points or other risks and will void the warranty.
- Refer all servicing to qualified service personnel.
- Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

  -When the power cord or plug is damaged or frayed.

  -If liquid has been spilled into the product.

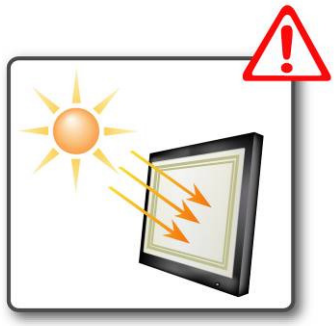
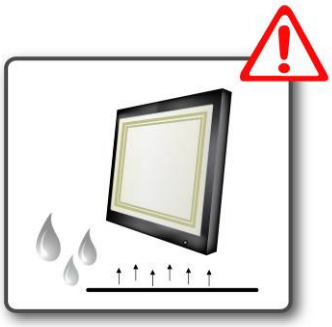
  -If the product has been exposed to rain or water.

  -If the product does not operate normally when the operating instructions are followed.
- Adjust only those controls that are covered by the operating instructions since improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal operation.

  -If the product has been dropped or the cabinet has been damaged.

  -If the product exhibits a distinct change in performance, indicating a need for service.

  -If the option module is in installation (the module is still not plugged into the slot)

CAUTION		
Read manual prior to installing the product. The operation of products depends on you reading and following the information in this manual. Re-check your work prior to operating the product.		
EVENT	EFFECT	PREVENTION
	Sunlight shines directly will cause the panel damage.	You should avoid placing the product under direct sunlight.
	If the product is close to the wet ground such as grassplot, the moisture between panel and glass will make the product malfunction.	You should avoid placing the product in wet environment.

Revision History

Rev	Date	Note	Author
1.0	May 20, 2011	1. Initial draft	Bruce Huang

Index

Chapter 1 General Introduction

20.1” Military Grade Display

Model: R20L100-RKA2ML

Specification

Display

Size: 20.1 inch

Resolution: 1600 x 1200 pixels

Brightness: 300 (cd/m^2)

Touch: 5 Wire Resistive

Mechanical and Environment

Dimension: 483mm x 399mm x 85mm

Operation Temperature: -25°C to 55°C

Operation Humility: 10% to 95%, non-condensing

Shock & Vibration: Compliant with MIL-STD-810F

Packing List

1 x R20L100-RKA2ML Unit

1 x Military Display User Guide (Paper)

1 x Military Grade Power Cable (2Meter)

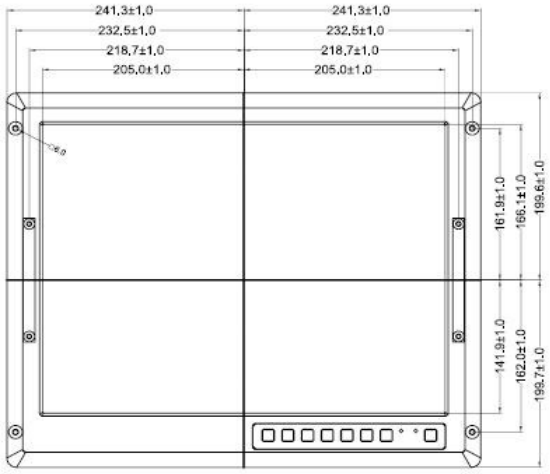
1 x VGA Cable (2Meter)

1 x DVI Cable (2Meter)

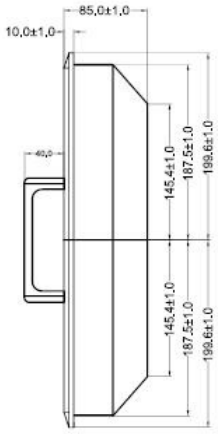
1 x VGA to 5 BNC Cable (2Meter)

1 x RS232 Cable for Touch Sensor (Optional)

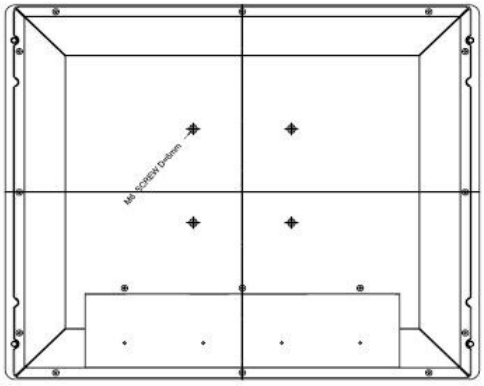
Mechanical Drawing



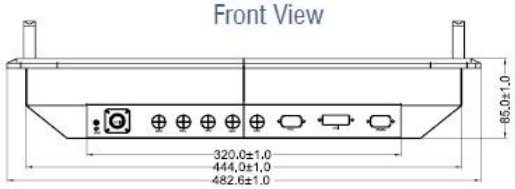
Front View



Side View



Rear View

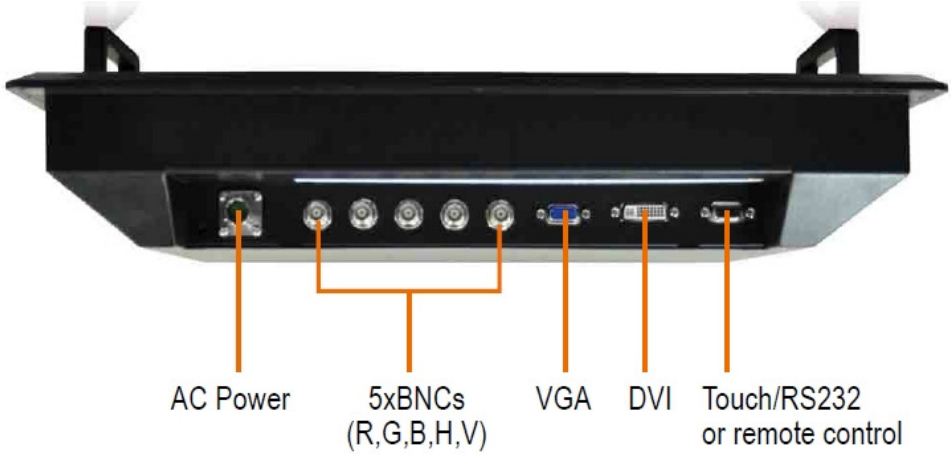


Bottom View

Technical Specifications

Display Specifications	
Model Name	R20L100-RKA2ML
Active Display Area	408.0(H) x 306.0(V) mm
Pixel Pictch	0.255(H) x0.255 (V) mm
Brightness	300 cd/m2 (typical)
Viewing Angle	-89~89 (H); -89~89(V)
Contrast Ratio	700:1
Response Time	25 ms (typical)
Display Colors	16.7 Million(8 bits/colors)
Synchronization Range	Horizontal: 31.5~80.0kHz
	Vertical: 60~75 Hz
Input Interface	15 pin D-Sub, 5 x BNCs, DVI-D, RS232
Recommended Resolution	1600 x 1200 @60Hz
Power Source	AC 100~240V, Universial ± 10%
Power Consumption	70W Typical, normal operation
Power Management	VESA DPMS Compliant
Plug & Play	VESA DDC 1/2B
Dimming Range	0~100 %
Light Sensor	Yes (default)
RS232 Remote Control	Optional
Glass	Yes (default) Standard Anti Reflective Glass
EMI ITO Glass	Optional, Transmittance 88%, 20ohm/sq
Touch Screen	Optional, 5 Resistive Touch Screen
EMI Mesh Touch Screen	Optional, 5 Resistive Touch with EMI Mesh Filter
Optical bonding	MOQ required

I/O View



Install the Military Grade Display

The procedure to set up your Military Grade display is as follows:

Power & Signal Connections

Power

Switch off the power on both your monitor and your computer.
The Power Switch is located in the front side of the monitor.

Power Cable Connection

Connect one end of Military Grade power connector to the monitor, and the other end connector to the power source.

.

VGA Signal Shielding Cable Connection

Plug one end of the 15-pin signal cable to the video signal connector at the rear of the PC system and the other end to the Display.

Secure the connectors with the screws on the cable connector at both ends.

DVI Signal Shielding Cable Connection

Plug one end of the DVI signal cable to the video signal connector at the rear of the PC system and the other end to the Display.

VGA to 5BNCs Signal Shielding Cable

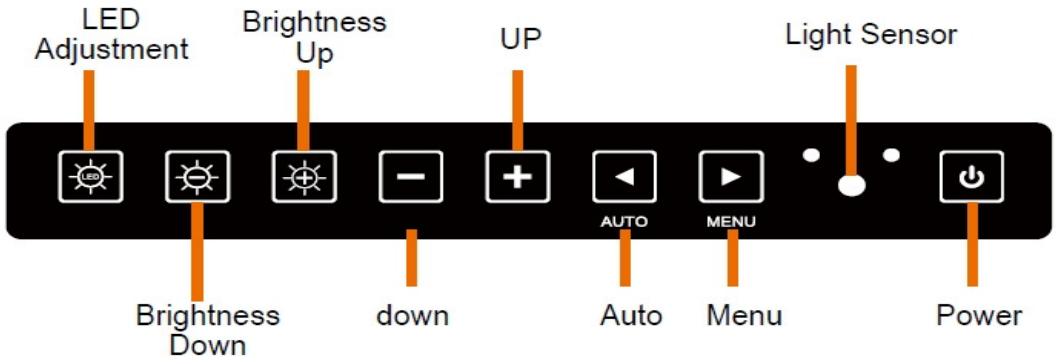
Plug one end of VGA signal cable to the rear side of the PC system and the other end of 5BNCs (R,G,B,H,V) signal connector to the Display.

Chapter 2 OSD Control

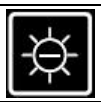
Front OSD control function

The compact OSD in front control is a user-friendly interface to remote the display function. The on screen display (OSD) contains several functions that will let the user to adjust or set up the display to their preferred setting. It also supplies special Hot Keys of clicking two keys together for easy flipping image and auto adjusting color balance

Control Key Definition



Key Pad Hot Key Function

Item	Description
	Power switch
	Call main OSD menu
	Press this key to trigger the function for automatic adjustment (VGA channel only)
	Press this key to increase the value of volume adjustment
	Press this key to decrease the value of volume adjustment
	Press this key to increase the value of brightness adjustment
	Press this key to decrease the value of brightness adjustment
	Press this key to switch  and  to LED sensor's brightness adjustment from backlight brightness adjustment
 and 	Press this compound key to trigger the function for source input switch

Navigating the OSD Menu

a. Display the main menu

Press the MENU button to display the main menu on the screen.

b. Select the menu you want to adjust

Press the +/− button to shift the item selections up or down until it is desired, and then press the button again to enter the menu item.

c. Adjust the item setting

Press the +/− button to adjust the value of setting. Once you adjust the value of setting, the value will be stored automatically.

d. Exit the OSD menu

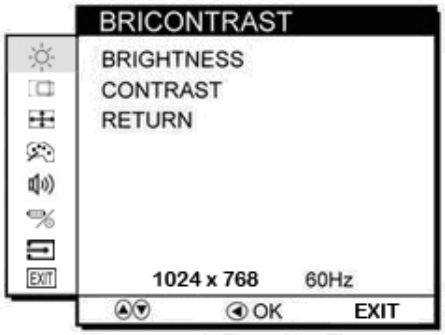
To return the regular screen viewing, select the “EXIT OSD” item or press the Exit Key directly. If there is no command respond for 30 seconds, OSD menu will be closed automatically.

OSD Menu on VGA Mode

BRICONTRAST

Press "+" to increase or "-" to decrease the brightness or contrast.

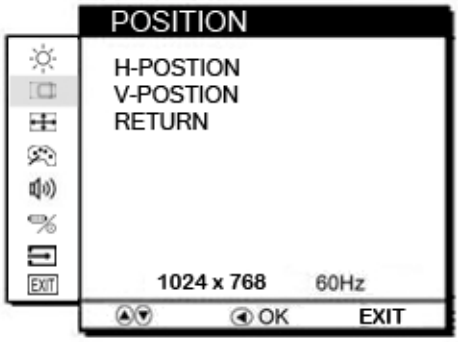
- BRIGHTNESS: Use to adjust the screen's brightness
- CONTRAST: Use to adjust the screen's contrast



POSITION

You can adjust the screen's position by horizontal and vertical manually.

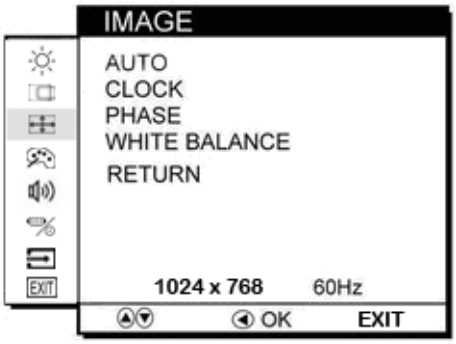
- H-POSITION: Use to adjust the image to the left or right on the screen
- V-POSITION: Use to adjust the image up or down on the screen



IMAGE

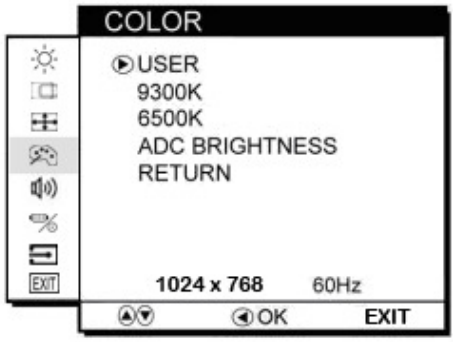
You can adjust the value of screen quality automatically.

- AUTO: Use to choose the best settings for the current input signal
- CLOCK: Use to adjust the value of horizontal image
- PHASE: Use to adjust the phase control (Phase adjustment may be required to optimize the display quality)
- WHITE BALANCE: Use to set RGB signal voltage level

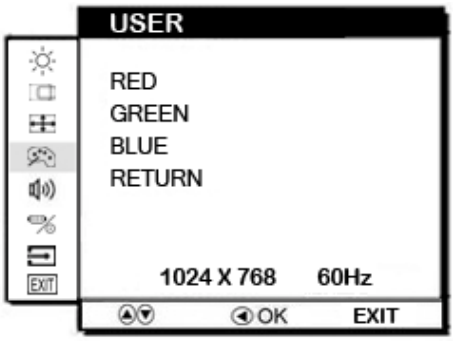


COLOR

You can select the screen's color level of the white color field from the default color temperature settings. Also, you can fine tune the color temperature by USER option if necessary.

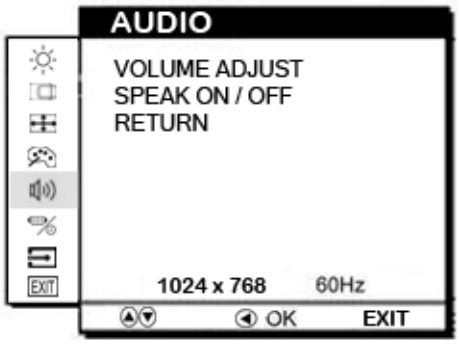


- USER: Choose RED/GREEN/BLUE to set value of color temperature brightness to suit you own preference
- 9300K: Use to set value of monitor for the CIE coordinate 9300 color temperature
- 6500K: Use to set value of monitor for the CIE coordinate 6500 color temperature
- ADC Brightness: Set value of monitor for ADC Brightness



AUDIO(optional)

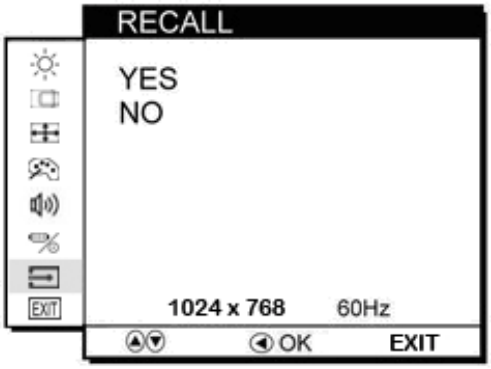
You can adjust the setting of speaker, including volume and mute.



- VOLUME ADJUST: Use to adjust the volume of speaker
- SPEAK ON/OFF: Use to make the speaker work or mute

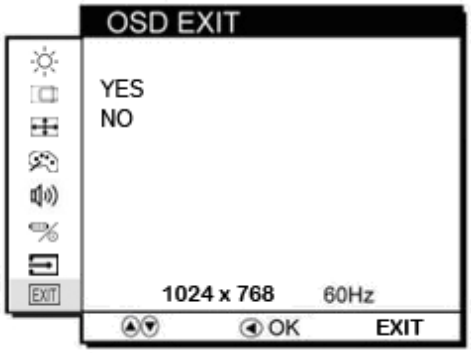
RECALL

You can recall the factory default setting by selecting “YES”. Select “NO” to return the main menu.



EXIT OSD EXIT

You can exit the OSD menu by selecting “YES”. Select “NO” to return the main menu.



Summary

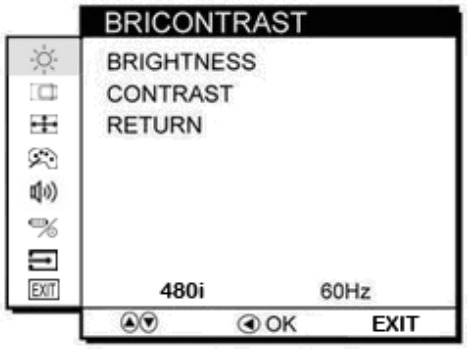
	BRICONTRAST	BRIGHTNESS CONTRAST		AUDIO	VOLUME ADJUST SPEAK ON/OFF
	POSITION	H-POSITION V-POSITION		CHANNEL	VGA DVI BNCs
	IMAGE	AUTO CLOCK PHASE WHITE BALANCE		RECALL	YES NO
	COLOR	USER └ (RED/GREEN/BLUE) 9300K 6500K ADC BRIGHTNESS	EXIT	OSD EXIT	YES NO

OSD Menu on DVI Mode

BRICONTRAST

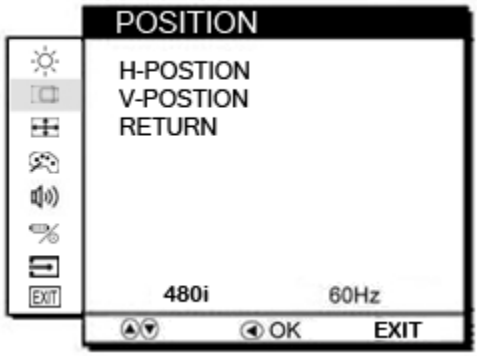
Press "+" to increase or "-" to decrease the brightness or contrast.

- BRIGHTNESS: Use to adjust the screen's brightness
- CONTRAST: Use to adjust the screen's contrast



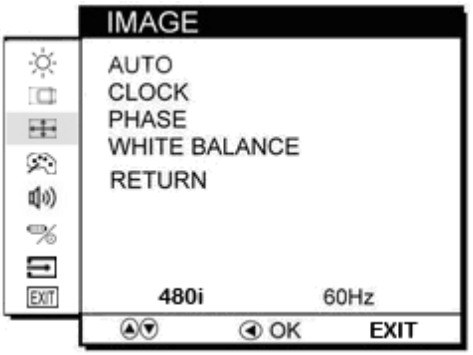
POSITION

These functions are not available under DVI mode.



IMAGE

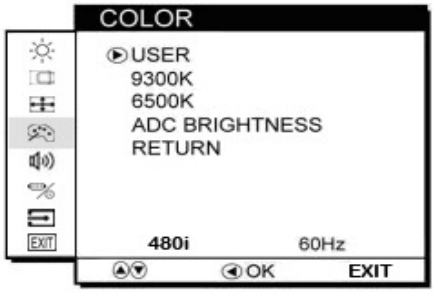
These functions are not available under DVI mode.

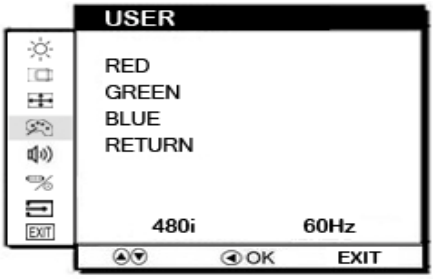


COLOR

You can fine tune the color temperature by USER option if necessary.

- USER: Choose RED/GREEN/BLUE to set value of color temperature brightness to suit you own preference
- For 9300K, 6500K, and ADC BRIGHTNESS, these functions are not available under DVI mode.

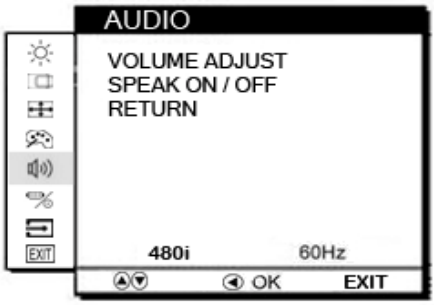




AUDIO(optional)

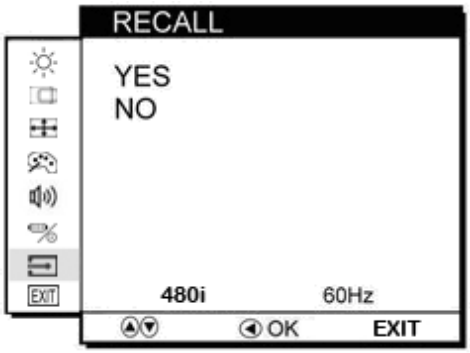
You can adjust the setting of speaker, including volume and mute.

- VOLUME ADJUST: Use to adjust the volume of speaker
- SPEAK ON/OFF: Use to make the speaker work or mute



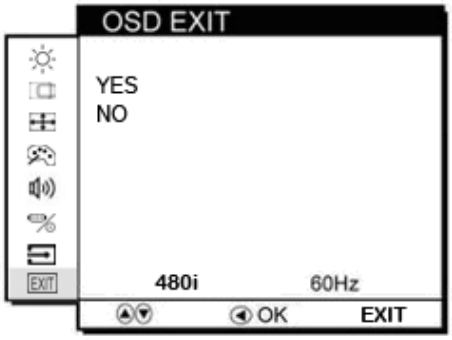
RECALL

You can recall the factory default setting by selecting “YES”. Select “NO” to return the main menu.



11 EXIT OSD EXIT

You can exit the OSD menu by selecting “YES”. Select “NO” to return the main menu.



Summary

	BRICONTRAST	BRIGHTNESS CONTRAST		AUDIO	VOLUME ADJUST SPEAK ON/OFF
	POSITION	Not available under DVI mode		CHANNEL	VGA DVI BNCs
	IMAGE	Not available under DVI mode		RECALL	YES NO
	COLOR	USER └ (RED/GREEN/BLUE)		OSD EXIT	YES NO

Trouble Shooting

If your monitor fails to operate correctly, consult the following chart for possible solution before calling for repairs:

Condition	Check Point
1. The picture does not appear	● Check if the signal cable is firmly seated in the socket. ● Check if the Power is ON at the computer ● Check if the brightness control is at the appropriate position, not at the minimum.
2. The screen is not synchronized	● Check if the signal cable is firmly seated in the socket. ● Check if the output level matches the input level of your computer. ● Make sure the signal timings of the computer system are within the specification of the monitor. ● If your computer was working with a CRT monitor, you should check the current signal timing and turn off your computer before you connect the VGA Cable to this monitor.
3. The position of the screen is not in the center	● Adjust the H-position, and V-position, or Perform the Auto adjustment.
4. The screen is too bright (too dark).	● Check if the brightness or contrast control is at the appropriate position, not at the Maximum (Minimum).
5. The screen is shaking or waving	● Press ◁ (the Auto - adjustment control) to adjust. ● Moving all objects which emit a magnetic field such as motor or transformer, away from the monitor. Check if the specific voltage is applied. ● Check if the signal timing of the computer system is within the specification of monitor.

- If you are unable to correct the fault by using this chart, stop using your monitor and contact your distributor or dealer for further assistance.

Appendix I

Military Grade EMI Compliance

EMC (MIL-STD 461E/F Compliance)					
EMC Test Spec	Type of Test	Frequency Range	Requirement	Default (√)	* Built-in EMI ITO Glass or Mesh Film Touch Sensor
CE101	Conducted Emissions	30Hz ~ 10kHz	30Hz ~ 1kHz :110 dB 1k-10k:110-90 dB	√	√
CE102	Conducted Emissions	30Hz ~ 10kHz	10kHz - 500KHz: 100-66dB ,500KHz~10MHz:66dB	√	√
CS101	Conducted Susceptibility	30Hz - 150kHz	(Above 28 Volts) 30Hz-5KHz:136dbμV, 5KHz~150k Hz:136-106.5 dB		√
CS106	Conducted Susceptibility	transients, power leads	(Vpeak = 400 V for 5.0 μsec, ±22%, Vsag <= 120 V for <=20 μsec)		√
CS109	Conducted Susceptibility	60Hz - 100kHz	(60-100kHz : 120-60dBμA)		√
CS114	Conducted Susceptibility	10kHz –200MHz	(10KHz~2MHz:49~89dbμA , 2MHz~30MHz:97dbμA, 30MHz~200MHz:97~89dbμA)		√
CS115	Conducted Susceptibility	Impulse Excitation	(5A/ 30nS, at a 30 Hz rate for one minute)		√
CS116	Conducted Susceptibility	10kHz - 100MHz	(Waveform: e - (π f t) / Q sin(2πft), Q = π(N - 1)/ln(IP/IN), Peak current =10A)		√
RE101	Radiated Emissions	30Hz - 100kHz	(30-100k :180-110 dBpT)	√	√
RE102	Radiated Emissions	10kHz - 18GHz	(2MHz~18G Hz: 44-89 dB)	√	√
RS101	Radiated Susceptibility	30Hz - 100kHz	(30Hz-100kHz :180-116 dBpt)		√
RS103	Radiated Susceptibility	2MHz - 40GHz	(2MHz-30MHz / 30MHz-1GHz / 1GHz-18GHz space :20V/m)		√

*To have MIL-STD-461E Compliance, it shall have EMI -ITO Glass or Touch with EMI Mesh Filter

Accessory List

Part Number
1. Military Grade 3 Pin Power Connector (conn. Type JY27466) 2 Meter 
2. Military Display Quick Installation Guide (Paper)
3. Touch Driver CD (Optional)
4. DVI Shielding Cable 2 Meter
5. VGA Sheilding Cable 2 Meter
6. 5 BNCs to VGA Sheilding Cable 2 Meter
7. Touch RS232 Sheilding Cable 2 Meter (Optional)
8. RS232 Remote Control Sheilding Cable 2 Meter (Optional)