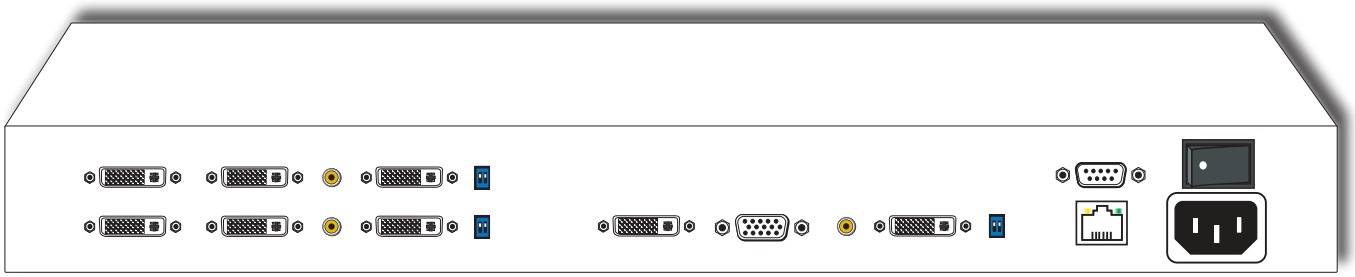
User Manual

MX-1004

Quasi Quad-View Video Processor



rev: 101109

Made in Taiwan

Safety and Notice

The **MX-1004** **Quasi Quad-View Video Processor** has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipments, the **MX-1004** should be used with care. Please read and follow the safety instructions to protect yourself from possible injury and to minimize the risk of damage to the unit.

- Follow all instructions and warnings marked on this unit.
- Do not attempt to service this unit yourself, except where explained in this manual.
- Provide proper ventilation and air circulation and do not use near water.
- Keep objects that might damage the device and assure that the placement of this unit is on a stable surface.
- Use only the power adapter and power cords and connection cables designed for this unit.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.

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INTRODUCTION

The **MX-1004** **Quasi Quad-View Video Processor** is an advanced video processor for multimedia presentations. It is an ideal solution for applications where up to four video signals must be displayed on a single display. It supports up to 10 video inputs, of which four can be outputted simultaneously with the desired display layout through software control. The advanced video processor allows you to manipulate output images, wherever positions and whatever sizes you want for viewing two computers or two video signals or a combination.

The embedded scaler converts signals from input sources to match the native resolution of monitors, flat panel displays, projectors as well as user-selectable output settings up to WUXGA (1920x1200). Dual outputs are provided in both analog (VGA) and digital (DVI) format, one is connected to remote display and the other is connected to on-site display for real time monitoring.

FEATURES

- Four VGA, three DVI, three component and three composite inputs, from 640x480 to 1920x1200, interlaced or progressive
- Dual outputs (DVI / VGA), 640x480 to 1920x1200
- Adjustable size & position through software
- Titles, borders and colored backgrounds
- Resize, position, flip, zoom & pan and blend output video
- Can be cascaded to obtain more images
- Image parameters and layouts can be saved in computers and can be loaded for later use
- Video parameters adjustable (brightness, contrast, color temperature, etc.)
- User-selectable output settings, up to 1920x1200
- Perfectly as a video screen splitter, a video converter and a video switcher
- Firmware upgradable for support of new features and technology enhancements
- Software control through RS-232 / RS-485 over Cat-5
- 1RU size

SPECIFICATIONS

Model Name	MX-1004
Technical	
Role of usage	Multiplexer / video processor
Dual output support	Yes [DVI + VGA]
HDCP compliance	No
Video bandwidth	DVI [Single-link 4.95Gbps] VGA [165MHz] Component [30MHz]
Input video support	480i / 480p / 720p / 1080i / 1080p60 / 1920x1200@75 / 1600x1200@60
Audio support	No
Control	RS-232 and IR
PIP / PAP	Yes
Cascadable	Yes
Input TMDS signal	1.2 Volts [peak-to-peak]
ESD protection	Human body model — 19kV [air-gap discharge] & 12kV [contact discharge]
PCB stack-up	6-layer board [impedance control — differential 100Ω; single 50Ω]
Input	4x VGA + 3x DVI + 3x component + 3x composite + 1x RS-232 + 1x RS-485
Output	1x DVI + 1x VGA
DVI connector	DVI-I [femal,29-pin]
S-Video connector	9 pin
VGA connector	HD-15 [15-pin D-sub female]
RS-232 connector	DE-9 [9-pin D-sub female]
RCA connector	75Ω female
RJ45 connector	WE/SS 8P8C with 2 LED indicators

Mechanical		
Housing		Metal enclosure
Dimensions [L x W x H]	Model	230 x 440 x 44mm [9.1" x 1'5.3" x 1.7"]
	Package	310 x 525 x 155mm [1'0.2" x 1'8.7" x 6.1"]
	Carton	570 x 580 x 260mm [1'10.5" x 1'10.9" x 10.2"]
Weight	Model	2830g [6.3 lbs]
	Package	5000g [11.1 lbs]
Fixedness		1RU rack-mount with ears
Power supply		AC Power 100-240V
Power consumption		35 Watts [max]
Operation temperature		0~40°C [32~104°F]
Storage temperature		-20~60°C [-4~140°F]
Relative humidity		20~90% RH [no condensation]

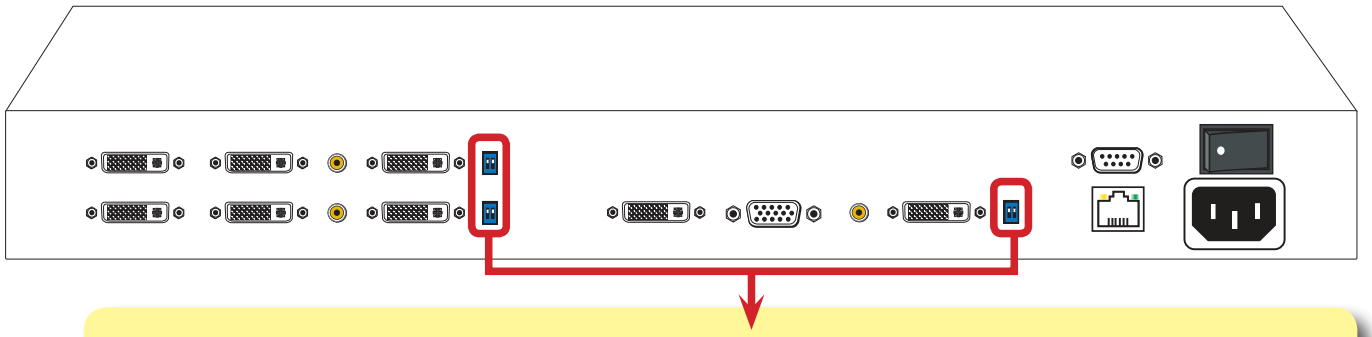
PACKAGE CONTENTS

- 1x MX-1004
- 3x VGA to component breakout cable
- 2x DVI to DVI cable
- 2x 1RU rack mounting-ear
- 1x UL AC power cord
- 4x DVI to DVI/VGA breakout cable
- 3x DVI to VGA adapter
- 1x USB to RS-232 cable
- 1x Installation software CD
- 1x User manual

INPUTS AND OUTPUTS

The **MX-1004** has 10 inputs and accepts both graphics and video signals, which come from computers (DVI or VGA), composite, and component video sources respectively. You can pick up four of the ten inputs and then display four of them simultaneously on the same screen. Figure shows the rear panel connectors of a MX-1004 and Table illustrates how you can connect video devices and display to the MX-1004.

Rear Panel



** Default: Turn on the MX-1004 then switch both three DIP switches simultaneously up and down to factory default mode.*

** These IO ports support various resolution from 640×480 up to 1920×1200, for more detail of the supported modes, please refer to the Appendix - Supported Resolution.*

Input / Output Connectors

Input Connector	Video Source
DVI-x component-x / VGA-x (x = 1~3)	(1) DVI (2) VGA — with a DVI-to-VGA adapter (3) Component — with a DVI-to-VGA adapter and a VGA-to-component breakout cable (4) 1x DVI + 1x VGA — with a DVI-to-DVI/VGA breakout cable (5) 1x DVI + 1x Component — with a DVI-to-DVI&VGA breakout cable and a VGA-to-component breakout cable
VGA-4	(1) DVI (2) VGA — with a DVI-to-VGA adapter
Composite-1 ~ Composite-4	Composite — with a RCA cable
Bridge Connector	2x DVI*
Output Connector	**Display**
DVI-I OUT	(1) DVI display (2) VGA display — with a DVI-to-VGA adapter (3) 1x DVI display + 1x VGA display — with a DVI to DVI&VGA breakout cable

It is CRITICAL to have the DVI-to-DVI cables connected to the CONN1-CONN1 & CONN2-CONN2 sockets on the MX-1004 for normal operation & firmware update. Please have the bridge connectors linked at any time.

SUPPORTED RESOLUTION

[DVI-x / Component-x / VGA-x (x = 1~3)] Socket

Supported Mode	Resolution
NTSC / 480i / 525i	720x240 @60Hz
PAL / 576i / 625i	720x288 @50Hz
480p / 525p	720x483 @60Hz
480p (16:9)	960x483 @60Hz
576p / 625p	720x756 @50Hz
(HDTV) 720p	1280x720 @50Hz
(HDTV) 720p	1280x720 @60Hz
(HDTV) 1080i	1920x1080 @50Hz
(HDTV) 1080i	1920x1080 @60Hz
(HDTV) 1080p	1920x1080 @30Hz
VESA	720x400 @85Hz
VESA	640x350 @85Hz
VESA	640x400 @85Hz
IBM	720x400 @70Hz
IBM	720x350 @70Hz
IBM	640x350 @70Hz
IBM	640x400 @70Hz
VESA	640x480 @60Hz
MAC	640x480 @67Hz
VESA	640x480 @72Hz
VESA	640x480 @75Hz
VESA	640x480 @85Hz
VESA	800x600 @56Hz
VESA	800x600 @60Hz
VESA	800x600 @72Hz

Supported Mode	Resolution
VESA	800x600 @75Hz
VESA	800x600 @85Hz
MAC	832x624 @75Hz
VESA	1024x768 @60Hz
MAC	1024x768 @60Hz
VESA	1024x768 @70Hz
IBM	1024x768 @72Hz
VESA	1024x768 @75Hz
MAC	1024x768 @75Hz
VESA	1024x768 @85Hz
VESA	1152x864 @75Hz
MAC	1152x870 @75Hz
SUN	1152x900 @66Hz
SUN	1152x900 @76Hz
VESA	1280x960 @60Hz
VESA	1280x960 @85Hz
VESA	1280x1024 @60Hz
HP	1280x1024 @60Hz
IBM	1280x1024 @67Hz
HP	1280x1024 @72Hz
VESA	1280x1024 @75Hz
SUN	1280x1024 @76Hz
VESA	1600x1200 @60Hz
VESA	1920x1200 @60Hz

[VGA] Socket

Supported Mode	Resolution
VESA	640x480 @60Hz
VESA	800x600 @60Hz
VESA	1024x768 @60Hz
VESA	1280x1024 @60Hz
VESA	1600x1200 @60Hz
VESA	1920x1200 @60Hz

[DVI-I OUT] Socket

Supported Mode	Resolution
(HDTV) 720p	1280x720 @50Hz
(HDTV) 720p	1280x720 @60Hz
(HDTV) 1080p	1920x1080 @60Hz
VESA	640x480 @60Hz
VESA	800x600 @60Hz
VESA	1024x768 @60Hz
VESA	1152x864 @75Hz
VESA	1280x1024 @60Hz
VESA	1280x1024 @50Hz
VESA	1280x768 @60Hz
VESA	1366x768 @60Hz
VESA	1400x1050 @60Hz
VESA	1400x1050 @50Hz
VESA	1152x864 @75Hz
VESA	1600x1200 @60Hz
VESA	1920x1200 @50Hz
VESA	1920x1200 @60Hz

HARDWARE INSTALLATION

Safety Precautions

1. To prevent fire or shock hazards, do not expose this device to rain or moisture.
2. When connecting other products such as DVD players, and personal computers, you should turn off the power of this product for protection against electric shocks.
3. The product should be placed more than one foot away from heat sources such as radiators, heat registers, stoves, and other products (including amplifiers) that produce heat. In addition, do not cover any material or devices on the top of the device.
4. Do not use immediately after moving from a low temperature to high temperature, as this causes condensation,
5. Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious injury to a child or adult and serious damage to the product.
6. Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
7. Do not allow the same still picture to be projected for a long time or an abnormally bright video picture to be projected. The video image could be burned in to the display device.

Installation Procedures

Unpacking

Remove the MX-1004 from the shipping container and examine it for any signs of shipping damage or missing items (check with package contents above). All shipping items should be saved if the product is to be moved or returned for service. Shipping unit back to dealers for service not in the original box may result in voiding warranty or additional cost.

Placement

The unit uses convection to cool. A fan is not needed, so do not block the sides of this device or stack another device on the top or bottom of the MX-1004.

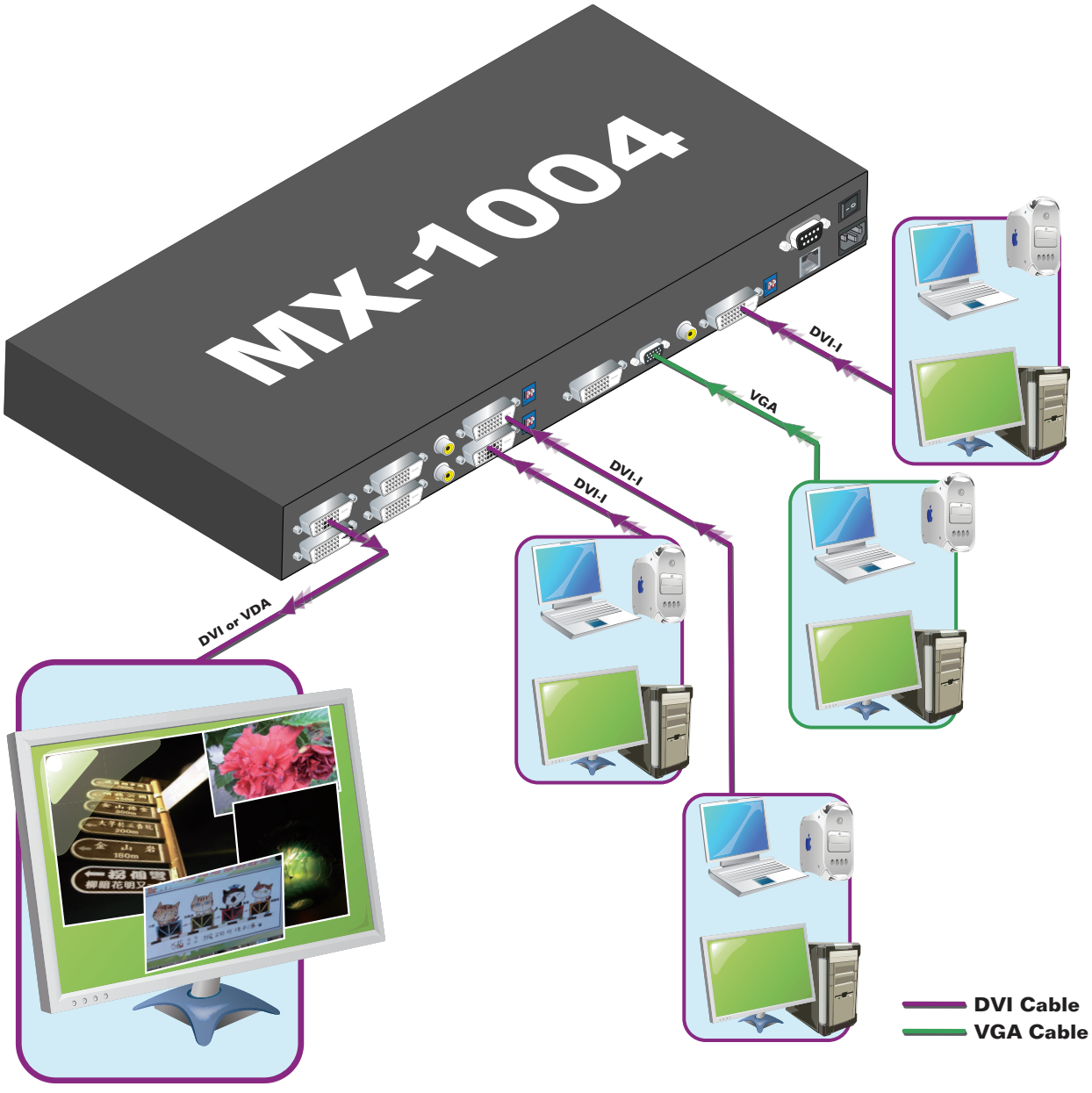
Connections

We recommend the highest quality cables for both input and output connections.

1. Switch off the MX-1004 and all devices that you want to connect.
2. Connect **CONN1** & **CONN1**, **CONN2** & **CONN2** by 2 DVI-to-DVI cables.
3. Connect a monitor, a projector or other displays that comes with DVI / VGA inputs by using 1 male-to-male DVI (VGA) cable to MX-1004 DVI output (you can connect 2 displays equipped with DVI and VGA respectively by a DVI to DVI&VGA breakout cable.
4. Plug in DVI to DVI&VGA breakout cable to DVI-Component-VGA-x and plug in VGA to component adapter to the VGA connector of the breakout cable.
5. Connect a device equipped with DVI output (such as PC) to the DVI connector of the breakout cable.

6. Connect a device equipped with component video output (component such as DVD player or camera) to the 3-RCA jack of the VGA-component breakout cable.
7. Connect a device equipped with VGA output (such as laptop) to the VGA connector of MX-1004.
8. Connect a device equipped with composite video output to composite input of the MX-1004.
9. Connect your computer with the MX-1004 by a 9-pin RS-232 cable and then install the software.
10. Plug in AD power cord into AC power socket.
11. Execute the control software and establish the connection between PC/Laptop and MX-1004.
12. For detailed software control operation, please refer to the software instruction section.

CONNECTION DIAGRAM



OPERATION SOFTWARE

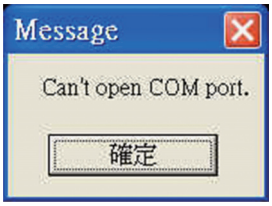
System Requirement and Precautions

1. The MX-1004 provides a software control program, Quartet, which runs under Microsoft Windows 98, 2000, XP, Vista through the interface of RS-232 serial control.
2. Before you click on the icon of the software, make sure you have secured the connection between your computer COM port and the MX-1004 and switched on the MX-1004 with green LED light.
3. The MX-1004 has remote control and software control. To make sure all information shown in the software is synchronized with those in the device, please click the update button to acquire the latest data from the MX-1004 after you press any key on the remote control.

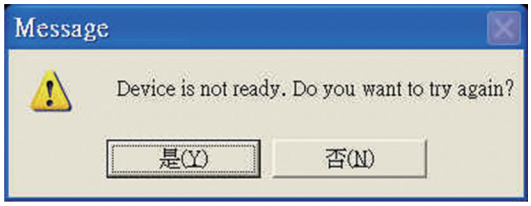
Instruction of Software Connection

1. Power up the MX-1004 and you can see both red and green LEDs on the front panel blink. Make sure the serial port (RS-232) connection secure.
2. The first step after running the software is to automatically detect if the device responses correctly through RS-232 port. First of all, choose the correct COM port from the Com Port selection list 

. Then, click on the linkage button to open the COM port. If the specified COM port is not available, the following error message window shows up. Please check the availability of COM Port. After the COM port is accurately established, please click on status update button . A warning message will show up as the figure below if the serial connection is not successfully detected.



COM Port Not Available

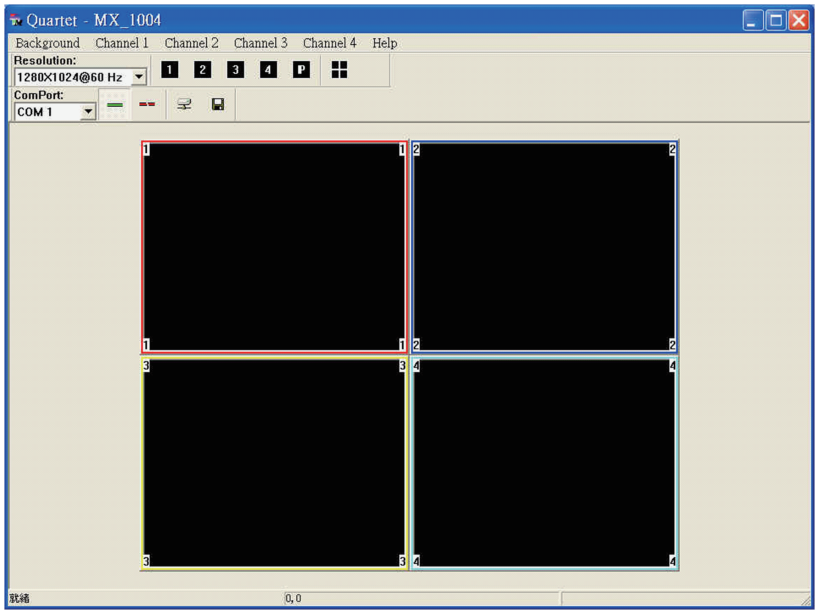


Device Not Ready

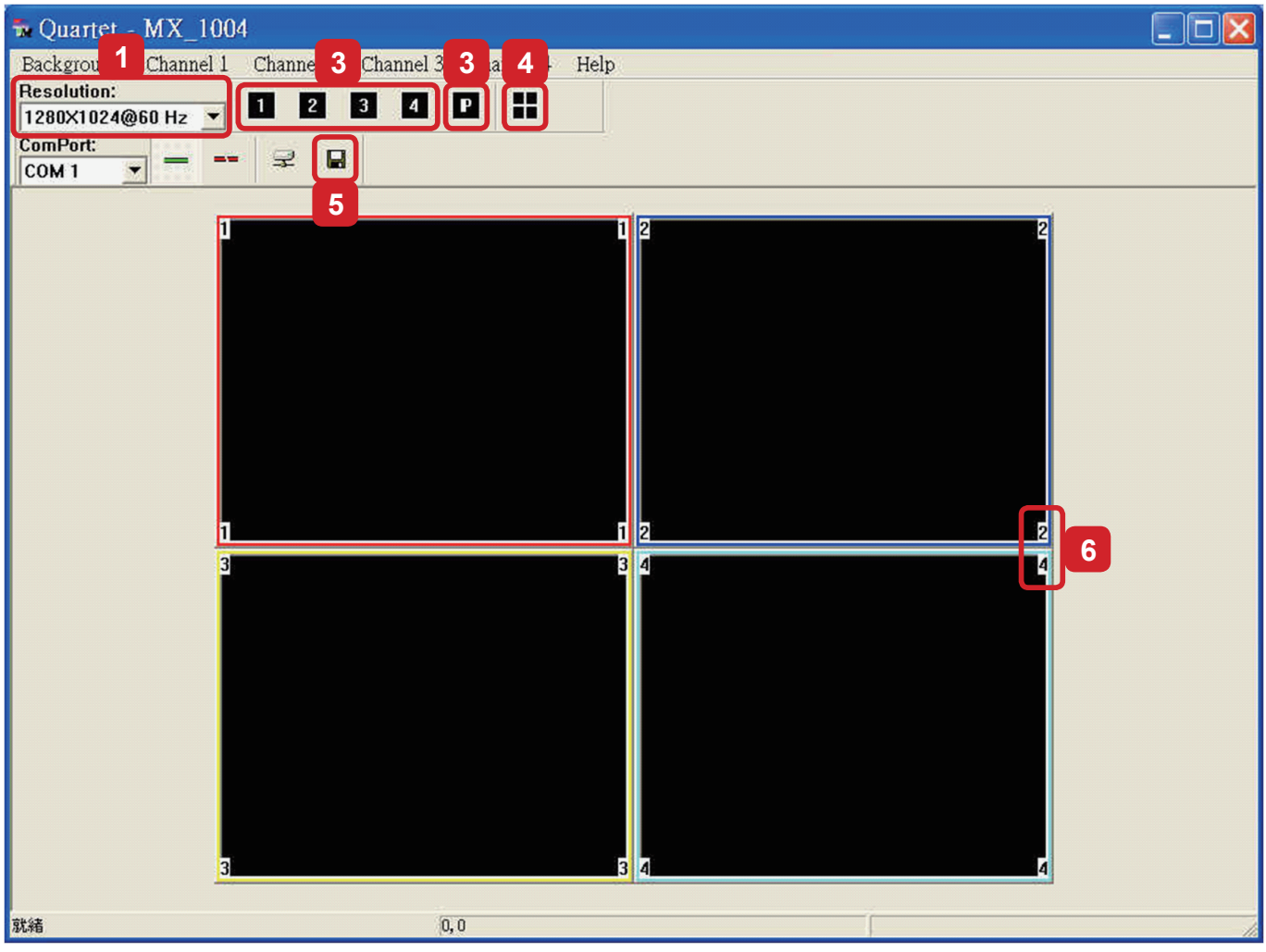
The possible reasons causing this failure could be:

- ***The MX-1004 is not supplied with power Please make sure the status, and reboot the MX-1004.***
- ***The serial connection through RS-232 is not well established or some other software has taken the available serial ports. Please make sure the RS-232 cable is well connected and the available serial port is free to be taken by the MX-1004.***

3. If the serial connection is well established, you can see work window as below.



Definitions of Menu Buttons and Icons



1 Output Resolution:

Supported Mode	Resolution
(HDTV) 720p	1280x720 @50Hz
(HDTV) 720p	1280x720 @60Hz
(HDTV) 1080p	1920x1080 @60Hz
VESA	640x480 @60Hz
VESA	800x600 @60Hz
VESA	1024x768 @60Hz
VESA	1152x864 @60Hz
VESA	1152x864 @75Hz
VESA	1280x1024 @60Hz

Supported Mode	Resolution
VESA	1280x1024 @50Hz
VESA	1280x768 @60Hz
VESA	1366x768 @60Hz
VESA	1400x1050 @50Hz
VESA	1400x1050 @60Hz
VESA	1600x1200 @60Hz
VESA	1920x1200 @50Hz
VESA	1920x1200 @60Hz

2 Quick setup for full screen display

Click on this button will make the desired display area be displayed as full screen.

3 Quick setup for PAP mode

This button will bring full screen mode back to PAP mode.

4 Quad Display mode

The functionality of this button is to expedite the default quad display. Notice that the input sources will not be changed. Only positions and sizes will be affected.

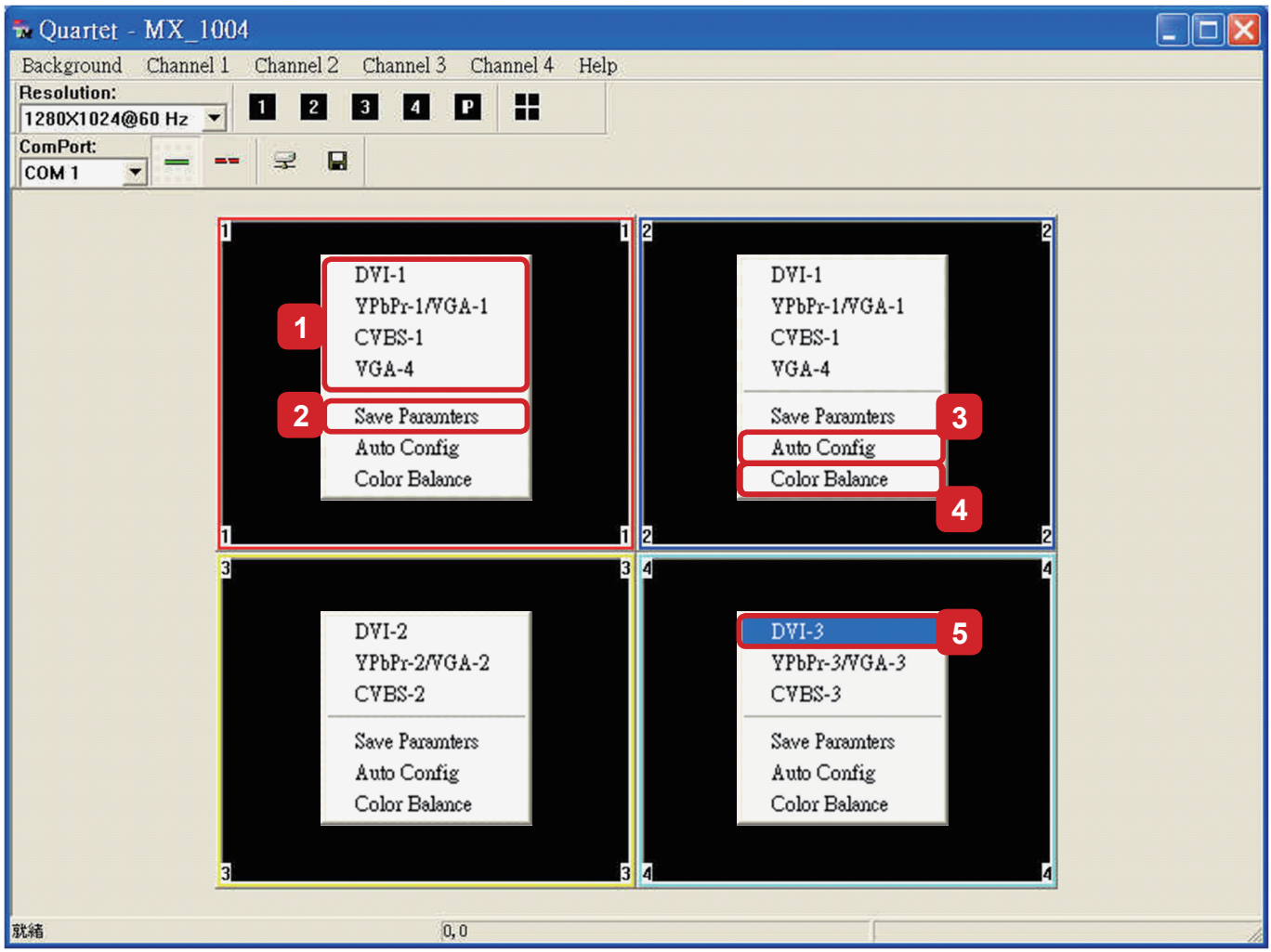
5 Save Parameters for all channels

Quartet will NOT automatically save the parameters regarding size, position, and color adjustments etc. Users MUST save all the related coefficients after the desired setup is finished. This will keep the same display layout after the MX-1004 is rebooted.

6 Display area number

There are totally 4 display areas, and the numbers are 1, 2, 3, and 4.

Display setup



Each display area has associated pop window to accelerate the selection of the input sources. Notice that each display may not have same choices of the input sources due to the hardware structure. On each display, clicking on the right button of the mouse will bring the control window as shown above.

1 The available input sources for the corresponding display area.

2 Saves parameters for each channel.

3 Auto configuration for VGA inputs

4 Color balance for VGA and component inputs.

5 The chosen input will become blue to indicate current selection.

TROUBLESHOOTING

Problem	Recommendations
No power	☑ Check if you correctly and firmly plug AC power core into MX-1004. ☑ If you are recovering from power outage, accidentally unplug the power core or other power surge conditions, leave the device off for a while and then power it on again.
No / Erratic video	☑ Make sure all cables are in good working condition and properly connected to the MX-1004 and displays. ☑ Configure the output video resolution so that it doesn't excess the native resolution of the display. (in this case, the message of "out of range" is usually showed on your screen) ☑ Make sure video sources are accurately selected to the right channels.
Poor quality	☑ We suggest that don't use T-connectors to split your video source into to images displayed on two different screens. That will lower output video quality. Use a distribution amplifier instead of T-connectors. ☑ Make sure the video source is not compressed and maintains the highest native resolution.
Wrong color	☑ Use color balance or auto configuration. *i* *Auto color configuration only works at VGA and component inputs.*

WARRANTY

The SELLER warrants the **MX-1004 Quasi Quad-View Video Processor** free from defects in the material and workmanship for 1 year from the date of purchase from the SELLER or an authorized dealer. Should this product fail to be in good working order within 1 year warranty period, The SELLER, at its option, repair or replace the unit, provided that the unit has not been subjected to accident, disaster, abuse or any unauthorized modifications including static discharge and power surge. This warranty is offered by the SELLER for its BUYER with direct transaction only. This warranty is void if the warranty seal on the metal housing is broken.

Unit that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for 90 days from the day of reshipment to the BUYER. If the unit is delivered by mail, customers agree to insure the unit or assume the risk of loss or damage in transit. Under no circumstances will a unit be accepted without a return authorization number.

The warranty is in lieu of all other warranties expressed or implied, including without limitations, any other implied warranty or fitness or merchantability for any particular purpose, all of which are expressly disclaimed.

Proof of sale may be required in order to claim warranty. Customers outside Taiwan are responsible for shipping charges to and from the SELLER. Cables and power adapters are limited to a 30 day warranty and must be free from any markings, scratches, and neatly coiled.

The content of this manual has been carefully checked and is believed to be accurate. However, The SELLER assumes no responsibility for any inaccuracies that may be contained in this manual. The SELLER will NOT be liable for direct, indirect, incidental, special, or consequential damages resulting from any defect or omission in this manual, even if advised of the possibility of such damages. Also, the technical information contained herein regarding the **MX-1004** features and specifications is subject to change without further notice.