Edition 1a

OKVM-088U

KVM Matrix Router

User manual



TABLE OF CONTENTS

CHAPTER 1. PRODUCT INTRODUCTION AND INSTALLATION

- 1.1 Safety Notices in Use Products
- 1.2 Description of Product Front and Real Panels
- 1.3 Quick Installation Guide

CHAPTER 2. Operation Instruction

- 2.1 Operation Summary
 - 2.1.1 One-to-one Connection of PC and Operator
 - 2.1.2 Distribution Method of Video/ Audio
 - 2.1.3 EDID Interface
 - 2.1.4 EDID Control
- 2.2 Management of OKVM-088U
 - 2.2.1 Command Codes
 - 2.2.1.1 CREATE COMMAND
 - 2.2.1.2 CANCEL COMMAND
 - 2.2.1.3 UPLOAD DATA REQUEST
 - 2.2.1.4 CHECK CONNECTION
 - 2.2.1.5 EDID CONFIGURATION
 - 2.2.1.6 NETWORK CONFIGURATION
 - 2.2.2 RS-232C Control
 - 2.2.3 Ethernet Control
 - 2.2.3.1 Telnet
 - 2.2.3.2 UDP
 - 2.2.3.3 Web
- 2.3 Example of KVM Matrix Configuration
 - 2.3.1 Control by Worker at Remote Sites
 - 2.3.2 Control by Control PC

CHAPTER 3. PC Program

- 3.1 Installation of PC Program
- 3.2 PC Program Execution
 - 3.2.1 Inital Setup
 - 3.2.2 Menu of PC Program
 - 3.2.3 Operation by PC Program
 - 3.2.3.1 Communication Connection with KVM Matrix
 - 3.2.3.2 Select PC to Use
 - 3.2.3.3 Video & Audio Distribution and Switching
 - 3.2.3.4 EDID Save

Appendix

- A. Feature
- **B.** Specification
- C. Firmware downloading

CHAPTER 1. Product Introduction and Installation

The OKVM-088U is the KVM (Keyboard Video Mouse) Matrix switcher, offering full cross switching functions of 8 PC operated machines to 8 operators. The product enables to allocates jobs for each of 1 to 8 operators to operate 8 machines.

The product gives video (DVI; Digital Vedio Interace) and Keyboard and mouse through USB of PCs or servers to manage machines in its input side and switches them to one (1) to eight (8) operators in its output side.

In addition, it enables that video and audio of such a PC could be discributed to all or any of operators, but Keyboard and Mouse based on USB are limited in one-to-one connection.

- Switching System of DVI Video/Stereo Audio/USB for Keyboard and Mouse
- DVI Video Resolution: WUXGA(1920x1200) at refresh rate 60Hz or 1920x1080P for digital TV
- Data Bandwidth of Video: 1.65Gbps in maximum
- Stereo Audio (Right /Left)
- EDID Interface: Save at EEPROM at each input entry of the product any of user owned or specific EDIDs.
- Supports long-distance extension by optical KVM Extender
- Supports not only Windows, but also SUN and MAC OS servers or PCs
- Offers control of the product over various interface
 - ♦ Control by command codes over RS-232C or TCP/IP
 - ♦ WEB Control
 - ♦ PC Program Control
- Shipping group

OKVM-088U Main Body: 1 SET

Hard Product Case: 1 EA

Keys for Hard Case: 2 EA

AC/DC Power Adaptor (12V/10A, AC110V-240V): 1 EA

AC Power cord: 1 EA

User Manual: 1 EA

PC Program CD: 1 EA

Firmware Download Cable (9 pins to PS2): 1 EA

Firmware Download Gender (25 pins to 9 pins): 1 EA

RS-232 Cable (crossed type): 1 EA

RJ-45 UTP (crossed type) Cable: 1 EA

1.1 Safety Notices in Use of Products

- > Use power cables or connecting cables which are in the shipping group as guided user manual.
- Use DVI and USB cables only certified or verified in electrical safety so as not to make any electrical shock or damage to the product.
- Do not use the product to be installed vertically or loaded any heavy weights over it, which subjects to be unknown causes of malfunction.
- > Avoid any liquids, magnet materials, and flammable materials.
- > Do not try to open the product in any case.
- > Turn the power off and contact to the service account if any abnormality happens.

1.2 Description of Product Front and Rear Panels

The OKVM-088U is so designed as to be equipped with rack brackets as an accessory on the standard 19" rack. The power switch locates on the front panel as shown in Figure 1-1.

\bigcirc	SPIDER	8x8 KVM Matrix Switcher	\bigcirc
		OKVM-088U	
\bigcirc		POWER	\bigcirc
\bigcirc			\bigcirc
\bigcirc			\bigcirc



All input or output ports including DVI in/out, USB in/out and power inlet are installed on the rear panel and their features are as follows and the drawing is as shown in Fig. 1-2.

- ♦ 8 x DVI and Stereo Audio Input Ports female type: ①
- ♦ 8 x DVI and Stereo Audio Output Ports female type: ②
- DC power receptacle + 12V: ③
- ♦ RS-232C Serial Port: ④
- ◆ 10/100 Base Ethernet Port: ⑤
- Console Box Extending Port: 6
- ◆ Download Port firmware Download: ⑦
- ♦ USB B Type Ports to connect to USB of Systems: ⑧
- ♦ USB A Type Ports to connect Keyboard / Mouse to Operators: ⑨





1.3 Quick Installation Guide

To guide the initial installation, follow through the procedure as below.

1. Confirmation of Network Set-up

Confirm the set-up of KVM MATRIX in reference of initial setting of Chapter 3.2.1..

2. RACK MOUNTING

Recommend to securely install the product on rack by using rack-ears in the shipping group before cabling.

Mount the product by screwing the rack-ears with L-shape wrench to meet the front-face of product to the rack.

- ③. Connect DVI in/out, USB cables and an interface cable of RS-232C or LAN to control PC.
- ④. Turn On the power on the front panel after connecting the power adaptor to the power jack on the rear panel.
- (5). Set the status of matrix switching into 1-to-1 by using PC program or command codes in reference as Chapter 2 or Chapter 3.
- 6. Boot up all server operated machines connected to the KVM MATRIX.
- ⑦. Refer the troubleshooting in case of PC monitors displaying not in normal.

2.1 Operation Summary

KVM Matrix OKVM-088U enables each operator to manage PCs or Servers for machines or while operating a PC, at the same time any of other operators could monitor it by distributing the video but keeping the connection of their USB to each machine.

2.1.1 One-to-one connection of PC and Operator

It switches both DVI for video and USB for keyboard and mouse at one time. The PC program in CD gives function to maneuver switching as shown in Fig. 1-3. Refer further details of operation to the chapter 3.



[Fig. 1-3] One-to-one switching of both Video/Audio and USB by PC program

2.1.2 Distribution Method of Video/Audio

It enables video and audio switching in independence of USB Switching. The instruction shows as in Figure 1-4 when using the PC program in CD. Refer further details for application in the chapter 3.



[Fig. 1-4] Video/audio distribution in separation of USB switching in PC program

2.1.3 EDID INTERFACE

The EDID (Extended Display Identification Data) stored in EEPROM of monitors gives all information to the PC or server such as manufacturer, seller, identification, and parameters regarding basic characteristics or features. It makes Plug and Play when the PC boots up.

The KVM MATRIX product is designed to store suitable EDID to each EEPROM at the entry of inputs. This feature has users constitute PCs in machines so as to match to monitors for each operator.

As shown in Fig. 1-4, setting input and output makes reading the EDID and storing in each EEPROM and later if PC connects, then it reads the EDID in EEPROM.



[Fig. 1-5] Schematic Drawing of EDID Interface

2.1.4 EDID Control

It shows how to save EDID to the targeted EEPROM as shown in the Fig. 1-6 below when used in PC program. Refer further details to the chapter 3.

4.4.1.1.1.			0 + 10 -				
Password LOG OUT	Administrator Mode 4 Job Complete! Job Complete! Job Complete! Job Complete! Job Complete! Job Complete! Job Complete! Job Complete!	Access OKI Well Co	control Seurg				
© RS-232 © Ethernet Port COM2 Baudrate	USB Configuration	02 03	04 05	06	07	08	User 1 : PC 1 User 2 : PC 2 User 3 : PC 3 User 4 : PC 4 User 5 : PC 5 User 6 : PC 6 User 7 : PC 7 User 8 : PC 8
Ethernet Setting	PC 01 Video & Audio Confi	02 03 guration	04 05	06	07	08	KM SEND Out 1 : In 1 Out 2 : In 2 Out 2 : In 3
	Monitor 01	02 03	04 05		07		Out 4 : In 4 Out 5 : In 5 Out 6 : In 6 Out 7 : In 7 Out 8 : In 8 VIDEO SEND
X	EDID Switching EEPRom 1 Monitor	2 3	4 5	6	7	8	EDID INFO SEND

[Fig. 1-6] EDID Storing in EEPROM

2.2 Management of OKVM-088U

The OKVM-088U is to be managed over interface of Ethernet or RS-232C of a control PC. The PC program and firmware in CD could be updated from time to time.

2.2.1 Command Codes

The command codes are consisted of ASCII and all listed on the table 2-1. The basic command string is as follows;

All command string starts with Start Byte (1 Byte).

Start (1 Byte) + Port Type (3 Bytes) + Command (1 Byte) + Data Length (3 Bytes) + Data 1`st (2 Bytes) + Data 2`nd (2 Bytes) + + End (1 Byte)

The regarding terminology is referred as

• Port Type: Data to decide control port of Matrix

- > ALL : Commands except for Switching
- > DVI : Switching only for DVI & Audio
- > USB: DVI & AŬDIO & USB Switching
- ROM : Setting EDID
- Command: Execution DATA
- DATA Length: Length of Command DATA
- DATA...In-out: Channel Number or Network Information
- End: STOP DATA

Com	mand Type	ASCII	HEX	Description	Byte	
Start		*	0x2A	Start Code	1	
		ALL	0x41, 0x4c, 0x4c	Commanda avaant far Switching		
Port Type		all	0x61, 0x6c, 0x6c	Commands except for Switching		
		DVI	0x44, 0x56, 0x49	Switching only for DVI and Audio		
		dvi	0x64, 0x76, 0x69	Switching only for DVI and Addio	3	
		USB	0x55, 0x53, 0x42	All together Switching of DVL Audio LISB		
		usb	0x75, 0x73, 0x62	All together Switching of DVI; Addio, USB		
		ROM	0x52, 0x4F, 0x4D	EDID Switching		
		rom	0x72, 0x7F, 0x7D	EDID Switching		
-	Create	0	0x30	Connects or disconnects the selected input and output channels		
	Cancel	2	0x32	Cancels the connection of selected channel		
	Upload Data	3	0x33	Upload the connections information to controller	1	
Command	Check Connec- tion	4	0x37	Uploads the right or wrong of all connections	1	
	EDID Write	D	0x44	Reads EDID from display And writes to EEPROM		
	Network Confi- guration S		0x53	Set up network information	1	
Da	ta Length		Variable	Data Length	3	
D	ata 1`st		Variable	Output Ch or Input Ch	2	
D	ata 2`nd		Variable	Input Ch or Output Ch	2	
	End	!	0x21	End Code		

[Table 2-1] Command Codes Sheet

The response data after executing the above commands is shown as table 2-1 as acknowledgement.

[Table 2-1] Explanation of ACK Signals

Acronym HEX		Description	Byte
Error	0x05	Matrix received the irregular data packet	1
Job Complete	0x06	Completed the operation per command	1
Connection OK	0xA0	Connection has been successfully done	1

The response data is tossed back right after the command executes. You can receive the value, 0x06, when the command executes in success. Otherwise, you will receive the value, 0x05.

The following examples show set-up over RS-232C, UDP, or Telnet.

2.2.1.1 CREATE COMMAND

The command, CREATE enables to set up the wanted in-out configuration of cross-switching.

Format of command line:

Start (*) + Port Type (Variable) + Command (0) + Data Length (Variable) + Data 1`st (Variable) + Data 2`nd (Variable) + + End (!)

1) Example of cross-switching of Video and Audio

Ex. 1> One (1) channel connection of Output Ch1 → Input Ch1

*DVI00040101!

					Data 1`st	Data 2`nd	
	START	Port Type	Command	Data Length	Output	Input	End
					Channel	Channel	
ASCII	*	DVI	0	004	01	01	!

Ex. 2> Eight (8) channels connection: All Output Ch → Input Ch 4

*DVI003201040204030404040504060407040804!

	CTADT	Dort Turoo	Command	Data Longth	Data 1`st	Data 2`nd
	START	Fort Type	Commanu	Data Length	Output Ch	Input Ch
ASCII	*	DVI	0	032	01	04

	Data 3`rd	Data 4`th	Data 5`th	Data 6`th	Data 7`th	Data 8`th
	Output Ch	Input Ch	Output Ch	Input Ch	Output Ch	Input Ch
ASCII	02	04	03	04	04	04

	Data 9`th	Data 10`th	Data 11`th	Data 12`th	Data 13`th	Data 14`th
	Output Ch	Input Ch	Output Ch	Input Ch	Output Ch	Input Ch
ASCII	05	04	06	04	07	04

	Data 15`th	Data 16`th	Fnd
	Output Ch	Input Ch	Ena
ASCII	08	04	!

2) Example of switching setup for Video, Audio and USB Port Note: One PC should be connected to only one USB port.

Ex. 1> One (1) channel connection of PC Number1 → USB Port Number 1

*USB00040101!

	STADT	Port Typo	Command	Data Longth	Data 1`st	Data 2`nd	End	
	START	FortType	Commanu	Data Length	USB Number	PC Number	Ena	
ASCII	*	USB	0	004	01	01	!	

Ex. 2> Eight (8) channels direct -- through connection

*USB003201010202030304040505060607070808!

	STADT	Port Type	Command	Data Longth	Data 1`st	Data 2`nd
	START	FortType	Commanu	Data Length	USB Number	PC Number
ASCII	*	USB	0	032	01	01

	Data 3`rd	Data 4`th	Data 5`th	Data 6`th	Data 7`th	Data 8`th
	USB Number	PC Number	USB Number	PC Number	USB Number	PC Number
ASCII	02	02	03	03	04	04

	Data 9`th	Data 10`th	Data 11`th	Data 12`th	Data 13`th	Data 14`th
	USB Number	PC Number	USB Number	PC Number	USB Number	PC Number
ASCII	05	05	06	06	07	07

	Data 15`th	Data 16`th	End	
	USB Number	PC Number	End	
ASCII	08	08	!	

2.2.1.2 CANCEL COMMAND

It cancels input output connection.

Format of Command Line:

Start (*) + Port Type (Variable) + Command (2) + Data Length (002) + PC Number(2 Bytes) + End(!)

1) Example of cancellation for Video and Audio

Ex> Disconnect input 1 video and audio.

*DVI200201!

	START	Dort Turno	Commond	Data Longth	Data 1`st	End	
		Foil Type	Commanu	Data Length	PC Number	Епа	
ASCII	*	DVI	2	002	01	!	

2) Example of cancellation for Video, Audio and USB

Ex> Disconnect input 1 video, audio and USB.

*USB200201!

	S	CTADT	Port Typo	Command	Data Longth	Data 1`st	End	
		START	Full type	Commanu	Data Length	PC Number	Enu	
	ASCII	*	USB	2	002	01	!	

2.2.1.3 UPLOAD DATA REQUEST

UPLOAD DATA REQUEST

It shows current input output connection status of Matrix.

Format of Command Line:

Start (*) + Port Type (ALL) + Command (3) + Data Length (000) + End(!)

*ALL3000!

	START	Port Type	Command	Data Length	End
ASCII	*	ALL	3	000	!

ACK Data

	START	Port Type	Command	Data Length
ASCII	*	DVI	0	032

Video & Audio	Data 1`st	Data 2`nd	Data 3`rd	Data 4`th	Data 5`th	Data 6`th	Data 7`th	Data 8`th
Connection	Output Ch	Input Ch						
ASCII	01	04	02	04	03	04	04	04

Video & Audio	Data 9`th	Data 10`th	Data 11`th	Data 12`th	Data 13`th	Data 14`th	Data 15`th	Data 16`th
Connection	Output Ch	Input Ch	Output Ch	Input Ch	Output Ch	Input Ch	Output Ch	Input Ch
ASCII	05	04	06	04	07	04	08	04

USB Connection	Data 1`st	Data 2`nd	Data 3`rd	Data 4`th	Data 5`th	Data 6`th	Data 7`th	Data 8`th
	USB	PC	USB	PC	USB	PC	USB	PC
	Number							
ASCII	01	04	02	04	03	04	04	04

	Data 9`th	Data 10`th	Data 11`th	Data 12`th	Data 13`th	Data 14`th	Data 15`th	Data 16`th
Connection	USB	PC	USB	PC	USB	PC	USB	PC
Connection	Number	Number	Number	Number	Number	Number	Number	Number
ASCII	05	04	06	04	07	04	08	04

EDID	Data 1`st	Data 2`nd	Data 3`rd	Data 4`th	Data 5`th	Data 6`th	Data 7`th	Data 8`th
	ROM	Sink	ROM	Sink	ROM	Sink	ROM	Sink
Connection	Number							
ASCII	01	04	02	04	03	04	04	04

EDID	Data 9`th	Data 10`th	Data 11`th	Data 12`th	Data 13`th	Data 14`th	Data 15`th	Data 16`th
	ROM	Sink	ROM	Sink	ROM	Sink	ROM	Sink
Connection	Number	Number	Number	Number	Number	Number	Number	Number
ASCII	05	04	06	04	07	04	08	04

	End
ASCII	!

2.2.1.4 CHECK CONNECTION

It checks the status of physical line for communication between KVM Matrix and control server.

Format of Command Line:

Start (*) + Port Type (ALL) + Command (7) + Data Length (000) + End (!)

*ALL7000!

	START	Port Type	Command	Data Length	End
ASCII	*	ALL	7	000	!

If the connection line is ready to communicate, OKVM-88U will return ACK, 0x06. If it is not ready or not connected properly, OKVM-88U will send other ACK except 0x06.

2.2.1.5 EDID CONFIGURATION

It reads EDID from connected displays and stores it into EEPROM.

Format of Command Line:

Start (*) + Port Type (ROM) + Command (D) + Data Length (Variable) + ROM Number(Variable) + Sink Number(Variable) + + End(!)

Ex.> Sets (Output 4 display→ All Input EEPROM) *ROMD03201040204030404040504060407040804!

					Data 1`st	Data 2`nd
	START	Port Type	Command	Data Length	ROM	Sink
					Number	Number
ASCII	*	ROM	D	032	01	04

	Data 3`rd	Data 4`th	Data 5`th	Data 6`th	Data 7`th	Data 8`th
Connection	ROM	Sink	ROM	Sink	ROM	Sink
Connection	Number	Number	Number	Number	Number	Number
ASCII	02	04	03	04	04	04

סוס	Data 9`th	Data 10`th	Data 11`th	Data 12`th	Data 13`th	Data 14`th
Connection	ROM	Sink	ROM	Sink	ROM	Sink
Connection	Number	Number	Number	Number	Number	Number
ASCII	05	04	06	04	07	04

	Data 15`th	Data 16`th	
	ROM	Sink	End
	Number	Number	
ASCII	08	04	!

2.2.1.6 NETWORK CONFIGURATION

It makes the KVM Matrix configured for Ethernet communication.

Format of Command Line:

- Start (*) + Port Type (ALL) + Command (S) + Data Length (048)
- + IP Address 1`st + IP Address 2`nd + IP Address 3`rd + IP Address 4`th
- + Sub Net Mask 1`st + Sub Net Mask 2`nd + Sub Net Mask 3`rd + Sub Net Mask 4`th
- + Gateway 1`st + Gateway 2`nd + Gateway 3`rd + Gateway 4`th + End(!)

Ex.> If the Ethernet parameters are set as follow.

IP Address : 125.135.199.139 Subnet Mask : 255.255.255.128 Gateway : 125.135.199.254

*ALLS048125.135.199.139.255.255.255.128.125.135.199.254.!

	START	Port Type	Command	Data Length
ASCII	*	ALL	S	048

Gateway	IP Address	IP Address	IP Address	IP Address
Data	1`st	2`nd	3`rd	4`th
ASCII	125.	135.	199.	254.

| Subnet Mask |
|-------------|-------------|-------------|-------------|-------------|
| Data | 1`st | 2`nd | 3`rd | 4`th |
| ASCII | 255. | 255. | 255. | 128. |

IP Address	Gateway	Gateway	Gateway	Gateway
Data	1`st	2`nd	3`rd	4`th
ASCII	125.	135.	199.	254.

	End
ASCII	!

2.2.2 RS-232C Control

HyperTerminal

OKVM-088U can be controlled by Window Hyper-terminal over RS-232C.

To set the Hyper-terminal,

A. Go to Start > Programs > Accessories > Communications > HyperTerminal



[Fig. 2-1] Menu for Hyper-terminal

B. Select Hyper-terminal then go to new connection. Select new name and icon.

New Connection	Sec. Linx
Enter a name and choose an icon for the connection:	Enter details for the phone number that you want to dial:
Name:	Country/region: United States (1)
Lina	Area code: 510
🌉 🤹 🥸 🖳 🎗	Phone number:
	Connect using: COM1
OK Cancel	OK Cancel

[Fig. 2-2] Initial configuration

[Fig. 2-3] Dialog connection

- C. Press OK then go to Dialog connection window.
- D. Ignore Country, Area Code and Phone Number and select available COM port number to communicate with OKVM-088U.
- E. Press OK then go to COM Properties dialog box.

COM2 Properties	? 🔀
Port Settings	
<u>B</u> its per second:	19200
Data bits:	8
Parity:	None
<u>S</u> top bits:	1
Flow control:	None
	<u>R</u> estore Defaults
0	IK Cancel <u>Apply</u>

[Fig. 2-4] COM Properties Dialog

- F. Set the parameter as follows.
 - Bits per second (baud rate): 19200 (recommended)
 - Data bits: 8
 - Parity: None
 - Stop bits: 1
- G. Press OK to execute Hyper-terminal.
- H. Send serial command (Refer to Chp. 2.2.1)

2.2.3 Ethernet Control

2.2.3.5 TELNET

Telnet is a terminal emulation program for TCP/IP networks such as the Internet.

The Telnet program runs on your computer and connects your PC to a server on the network. You can then enter commands through the Telnet program and they will be executed as if you were entering them directly on the server console. This enables you to control the server and communicate with other servers on the network

- A. Select Start menu and select Run.
- B. Type command as shown below.



[Fig. 2-5] TELNET window

- C. Select **OK** to open the command window.
- D. Type the command: telnet 192.168.0.88
- E. Send serial command (Refer to Chp. 2.2.1)

2.2.3.6 UDP

OKVM-88U can be controlled by UDP. The configuration method for IP Address is same as that of TCP/IP. But the port number is fixed at 3000.

2.2.3.7 WEB

WCP (web control panel) is the control method by standard web browser. Microsoft Explorer is highly recommended.

Execute web browser and type the matrix IP Address as follows.

http://192.168.000.088

Then, it shows Web control window as below.



[Fig. 2-7] Web Control window

Video & Audio Switching States

- □ To control Video and Audio switching, select Source (#PC) on the first table.
- □ To make connection, press SEND.

USB & Keyboard Mouse Switching States

- □ To control USB only, select USER number on the second table.
- □ To make connection, press SEND.

EDID Switching States

- To read EDID from attached displays and store in the EEPROM, select monitor number.
- □ Press SEND.

2.3 Example of KVM Matrix Configuration

The following examples help to understand KVM Matrix and its systems. But the other configuration could be done up by number of PCs and workers and specific requirements to operate whole system.

2.3.1 Control by workers at Remote Sites



4 Workers with additional 4 viewers

[Fig. 2-8] Control by workers at remote sites

- A. Each worker can access other PCs, which are not allocated by other workers.
- B. The control software should be installed in all PCs.

2.3.2 Control by Control PC



4 Workers with additional 4 viewers

[Fig. 2-9] Control by control PC

A. Master user allocates each PC to each worker. Workers can't access other PCs until the new connection happens by master user.

CHAPTER 3. PC program

3.1 Installation of PC Program

Insert the installation CD in CD reader then it starts auto-run and shows the windows as below.



[Fig. 3-1] Installation of PC program

Click Next and specify the program destination in your PC. The default directory is; C:\Program Files\KVM Matrix. Click install to start the program installation.



[Fig. 3-2] PC program destination

Click 'Ok' to complete the installation.



[Fig. 3-3] Installation completion of PC program

3.2 PC program Execution

3.2.1 Initial Setup

- # Precaution of execution Power on after check the connection status of RS-232C cable.
- 1) Execute as Start → Program → KVM Matrix → KVM Matrix Controller.
- 2) As PC program is started, it checks the connection status with equipment via RS-232C.
- 3) In case of wrong connection or communication failure, "Device Not Found!" will be displayed.
- 4) Click RS-232C on PC program, "Port Closed" will be displayed.
- 5) Click RS-232C after check Comport setup, Connection status, Power on status of equipment.



[Fig. 3-4] Execution of PC program

 When communication is succeeded, the message box will be appeared to check DATA Upload as shown below.

```
"Device Connected."
"RS-232C Connection Check Success."
```



[Fig. 3-5] Question box of Data upload

7) Set up the Network of KVM Matrix after RS-232C is connected and the message box will be appeared with KVM IP Setting button in the left as shown below.

KVM Socket setting								
	192		168		100		10	
IP Address :	255		255		255		0	
Subnet Mask :	102		140		- 200		0	
Gateway :	192		100	•		-	2	
Port :	3010			Ok		Ca	incel	

[Fig. 3-6] Network setup

- 8) Click Ok button after enter all items.
- 9) Complete the initial procedure of KVM Matrix control by PC program.

3.2.2 Menu of PC Program



[Figure 3-7] Item description of PC program

- > ① : Log in/out and Password input box for program operation (Password : 0000)
- ② : Selection of communication interface connected with equipment and on/off for communication connection (Connection status is displayed on the message box.)
- ➢ ③ : Setup of RS-232C communication (Baud rate is set as 19200.)
- > ④ : Network information setup of equipment to be connected.
- ➢ ⑤ : Network information setup of KVM Matrix
- ▶ 6 : Message display box by program operation
- > (7) : Interface of Video & Audio distribution and switching
- > (8) : Interface for PC selection and control
- > 9 : EDID setup interface
- > 10 : Command transmission button for Video & Audio connection
- > (1): Command transmission button for PC selection
- > (2): Command transmission button for EDID setup

3.2.3 Operation with PC program

3.2.3.1 Communication Connection with KVM Matrix

- 1) Connect RS-232C cable or LAN cable with equipment after the initial setup as shown in previous page.
- Click the Ethernet Setting in left side of program after program execution and the message, Device Not Found is displayed for LAN cable. The message box is shown as below.

P	PC Socket setting								X
	IP Address :	192	•	168	•	1	•	10	
	Subnet Mask :	255	•	255	•	255	•	0	
	Gateway :	192	·	168	•	1	•	1	
	Port :	3000			Ok		Ca	incel	

[Figure 3-7] Network setup box

- 3) Click Ok button after enter Network information set in KVM Matrix on message box.
- Enter password, "0000" to LOG IN after communication connection of KVM Matrix.

3.2.3.2 Select PC to Use

- 1) Select PC to be used in USB & Keyboard/Mouse Configuration of PC program.
- 2) Select the PC user.
- 3) Click KM Send button.

3.2.3.3 Video & Audio Distribution and Switching

- 1) Select source to be used in Video & Audio Configuration of PC program.
- 2) Select monitor to display.
- 3) Click Video Send button.

3.2.3.4 Save EDID

- 1) Select monitor channel to be saved in each ROM of PC program EDID Switching.
- 2) Click EDID INFO Send button.

A. Features

- Video/Audio/USB Switching system
- Resolution : Up to WUXGA(1920x1200 / 60Hz), 1920x1080P
- Data transmission bandwidth : Up to 1.65Gbps
- Stereo Audio(R/L)
- Enable to save any or certain EDID data of EDID interface in EEPROM of Matrix input terminal.
- Long distance signal transmission via KVM Extender
- Support SUN PC and MAC OS
- Various control interface
 - ♦ Command input and control via RS-232C, LAN
 - ♦ Integrating Ethernet control
 - ♦ PC program control
- Windows PLUG & PLAY function
- Program download by ISP Interface

B. Specification

- 1) Input & Output Video Signals Type: TMDS (Transient Minimized Differential Signal)
- 2) DVI Signal Bandwidth: Maximum 1.65Gbps
- 3) Resolution: VGA (640x480) ~ WUXGA (1920x1200), 480~1080i and 1080p
- 4) RS232 baud rates: Set as 19,200bps
- 5) LAN Port: 10/100 bases
- 6) USB: Support Hi-speed USB 1.1
- 7) AC/DC Power Supply: 110~240V/1.5A, 50~60Hz, DC12V/10A
- 8) Size: 444 x 230 x 115mm (W x D x H) *<u>For 8x8</u>
- 9) Weight: 6.2Kg *<u>For 8x8</u>

C. Firmware Downloading

1) Setup Ponyprog2000

*Ponyprog 2000 is a program for firmware update in the enclosed CD and set it up as the procedure as shown below.



Click 'I accept the agreement' to advance the next step.

🛃 Setup – PonyProg2000	
License Agreement Please read the following important information before continuing.	
Please read the following License Agreement. You must accept the terms of this agreement before continuing with the installation.	
PonyProg is copyright by Claudio Lanconelli. PonyProg is free software, you can freely copy and redistribute it if no fee is charged for use, copying or distribution. If you want to distribute PonyProg with your program or your hardware programmer, ask me by e-mail (lancos@libero.it) PONYPROG IS PROVIDED TO YOU ''AS IS,'' WITHOUT WARRANTY. THERE IS NO WARRANTY FOR THE PROGRAM, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A	
 I accept the agreement I do not accept the agreement 	
< Back Next>	Cancel

Click the 'NEXT' button by designating setup path.

🛃 Setup – PonyProg2000	
Select Destination Directory Where should PonyProg2000 be installed?	
Select the folder where you would like Ponyl	Prog2000 to be installed, then click Next.
C:₩Program Files₩PonyProg2000	
C:₩	
📄 Program Files	
이 이 이 이 이 이 이 이 이 이 이 이 이 이 이 이 이 이 이	
🗀 Adobe	
C-Media 3D Audio	
Common Files	
ComPlus Applications	•
🧼 C:	•
The program requires at least 0.9 MB of disk	space.
	< Back Next > Cancel

Select Start Menu Folder.

🛃 Setup – PonyProg2000	_ 🗆 🗙
Select Start Menu Folder Where should Setup place the program's shortcuts?	
Select the Start Menu folder in which you would like Setup to create the program's shortcuts, then click Next.	
관리 도구 보조프로그램 빵집 마미팝 (www.ipop.co.kr) 한글과컴퓨터 ImageCraft Development Tools Microsoft Developer Network Microsoft Office 도구 Microsoft Visual Studio 6.0 P-CAD 2002 Trial Version PonvPron	
< Back Next >	Cancel

Click 'Install' button to start set the program in User PC.

🗐 Setup – PonyProg2000	
Ready to Install Setup is now ready to begin installing PonyProg2000 on your computer.	
Click Install to continue with the installation, or click Back if you want to review or change any settings.	r
Destination directory: C:₩Program Files₩PonyProg2000	4
Start Menu folder: PonyProg	
1	
< Back Install	Cancel

Complete the setup successfully by clicking 'Finish' button.



2) Download of Firmware

Execute program after connecting PC for download and product with firmware download cable and power on.



Calibrate by clicking 'OK' button.





Select 'AVR micro' as shown below.

Po File	nyProg2000 - Edit Device	- Serial De Command	vice Programm Script Utility	er Setup 2 Window				_O×
			E EL	<u>seap i inden</u>	12C Bus 8bit eeprom	▼ 24× Auto	•	
6	2	;	2 8 <		MicroWire8 eeprom SPI eeprom AVR micro	<u> </u>		
Sy No	o Name				AT89S micro PIC 16 micro	•		
Pony	Prog2000	24XX Auto	Size O Bytes	CRC 0000h				



Select 'Interface Setup' in Setup menu as shown below.

🚺 PonyProg2000 – Serial Device Programmer	
File Edit Device Command Script Utility Setup ? Window	
AT mega128 V	
∑rNo Name	-D×
PoryProg2000 ATmega128 Size 135168 Bytes CRC 8A01h	

Click 'OK' button after set I/O port as shown below.

I/O port setup							
I/O port setup	I/O port setup						
O Serial	Parallel						
SI Prog API	Avr ISP I/0						
🔿 сомт 💿 сомз	C LPT1 C LPT3						
O COM2 O COM4	O LPT2						
Select Polarity of the Control	lines						
🗖 Invert Reset 🔲 Invert D-IN							
Invert SCKL Invert D-OUT							
Cancel OK Pro	be						

🚺 PonyProg2000 -	- Serial Device Programmer			
File Edit Device	Command Script Utility Setup	? Windov	W	
	Read All Read Program (FLASH) Read Data (EEPROM)	Ctrl-R	AVR micro ATmega128	
m mp mb m Mo Name	Write All Write Program (FLASH) Write Data (EEPROM)	Ctrl-W		
	Verify All Verify Program (FLASH) Verify Data (EEPROM)	Ctrl-V	_	
	Security and Configuration Bits,	Ctrl-S		
	Erase	Ctrl-E	1	
	Reset	Ctrl-T		
	Program Program Options	Ctrl-P		
	Read Osc.Calibration Byte Osc. Calibration Options	Ctrl-0		
PonyProg2000 A	ATmega128 Size 135168 Bytes CRC	8401h		

Select 'Security and Configuration Bits' in Command menu as shown below.

Check the option is same as below by click 'Read' button and recheck after 'Clear All' if it is not same. Click 'Write' button and 'Read' button to check the option is set as below.

Configuration and Security bits					
□ 7 □ 6 □ 5 □ 4 □ 3 □ 2 □ M103C □ WDTON					
🗖 OCDEN 🗂 JTAGEN 🗹 SPIEN 🔽 CKOPT 🔽 EESAVE 🖾 BOOTSZ1 🖾 BOOTSZ0 🗖 BOOTRST					
□ BODLEVEL □ BODEN □ SUT1 □ SUT0 □ CKSEL3 □ CKSEL2 □ CKSEL1 □ CKSEL0					
Checked items means programmed (bit = 0)					
Refer to device datasheet, please					
Cancel OK Clear All Set All Write Read					



Select 'Write Program(FLASH)' in Command menu.

🚺 PonyProg2000 – Serial De	vice Programmer				_ O ×
File Edit Device Command	Script Utility Setup ?	Window			
Read All Read All Read Da	I C [.] ogram (FLASH) ata (EEPROM)	trl-R	AVR micro	▼ ATmega128 ▼	
	0	trl=10/			
Se us CheckW017 Write Pro	ngram (ELASH)				
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	ta (EEPBOM)		FE FE FE		
000010) FF FI	(22) (10) (i)		FF FF FF		
000020) FF FI Verify Al	II C	trl-V = I	FF FF FF		
000030) FF FI Verify Pr	rogram (FLASH)	- F I	FF FF FF		
000040) FF FI Verify Da	ata (EEPROM)	- F 1	FF FF FF		
000050) FF FI Securitu	and Configuration Bits	trl-S	FF FF FF	•••••	
BUBBER FF FF Second	Construction Distance	tri_E	FF FF FF		
BBBBBB EF EL Bacat	0	trl-T	FF FF FF AL EE AL	·····}····	
888898) 58 8	0	<u> </u>	84 55 84 84 60 84	Xf^addim	
RARAAN 78 R Program	n C	trl-P	84 85 84	n.s.v.u.l	
000080) A1 0/ Program	n Options	6	04 B6 04		
6666C6) B9 64 Bood Oc	Collibration Buta	trl=0	04 CE 04		
0000D0) D1 0/ Occ Co	libration Options	ui-o -	11 92 11		
0000E0) 96 1 OSC, Ca	nbradon Opdons	E -	11 B2 11		
0000F0) B6 11 BA 11 B	3E 11 C2 11 - C6 11 EA	A 11 EC -	11 EE 11		
000100) F0 11 F2 11 F	⁻ 4 11 F6 11 - F8 11 Ff	9 11 FC 1	11 FE 11		
	94 12 96 12 - 98 12 96	1 12 86 1	12 27 12		
000120) 2H 12 2D 12 3	30 12 33 12 - 30 12 39 60 49 60 49 - 65 49 54	7 12 36 1 49 EK -	12 35 12	*0.3.0.9.(.f.	
8881188) 42 12 45 12 4 8881188) 50 12 88 88 6	48 12 46 12 - 4E 12 5 38 88 88 88 - 88 88 81	1 12 54 8 88 88 1	12 57 12	8.E.H.K.N.Q.I.W.	
	30 80 20 20 - 20 J3 AF	6F 74	72 6F 6C	Control	
888168) 28 53 74 61 7	72 74 21 20 - 20 20 0	8 49 6F	69 74 69	Startt Initi	
000170) 61 6C 69 7A 6	55 20 43 6F - 6D 70 60	65 74	65 64 00	alize Completed.	
000180) 3D 3D 3D 20 5	2 6F 6C 6C - 69 6E 67	7 20 53	74 6F 70	=== Rolling Stop	
000190) 20 3D 3D 3D 6	80 3D 3D 3D - 20 52 6F	60 60	69 6E 67	Rolling	
0001A0) 20 4D 6F 64 6	55 20 3D 3D - 3D 00 20	0 20 20 3	20 20 43	Mode ===. C	
0001B0) 6F 6D 70 6C 6	55 74 65 64 - 21 21 20	0 20 20 3	20 00 20	ompleted!! .	
0001C0) 20 20 45 74 6	58 65 72 6E - 65 74 20	0 53 65	74 75 70	Ethernet Setup	
0001D0) 20 20 20 00 3	3D 45 74 68 - 65 72 6E	65 74 3	20 43 6F	.=Ethernet Co	
0001E0) 6E 66 69 67 7	75 72 65 3D - 00 3C 20	9 20 20 3	20 20 20	nfigure=.<	
					_
PonyProg2000 ATmega128	Size 135168 Bytes CRC 04D0	h			

Select 'OK' button to start download process.

.

Yes or No				
Are you sure you want to write the device? All previous content will be lost				
Yes No Cancel				
Status				
Verifying				
70%				
Notice				
Write successful OK				

Firmware download is completed and system is operated with new version of firmware. Please restart the products after the completion.



Opticis Locations

Opticis Co., Ltd. #501 Byucksan Technopia, 434-6, Sangdaewon-Dong, Chungwon-Ku, Sungnam City, Kyungki-Do, 462-120, South Korea Tel: +82 (31) 737-8033 Fax: +82 (31) 737-8079

For order support, please contact your Distributor or Reseller.

For technical support, visit Opticis web site <u>www.opticis.com</u> or contact <u>techsupport@opticis.com</u>