INSTRUCTION MANUAL

SB-4140

4x4 VGA Matrix Switcher + IR + RS-232



SHINYBOW™ USA

MULTIMEDIA AUDIO AND VISUAL

SAFETY INFORMATION

1. To ensure the best results from this product, please read this manual and all other documentation before operating your equipment. Retain all documentation for future reference.
2. Follow all instructions printed on unit chassis for proper operation.
3. To reduce the risk of fire, do not spill water or other liquids into or on the unit, or operate the unit while standing in liquid.
4. Make sure power outlets conform to the power requirements listed on the back of the unit. Keep unit protected from rain, water and excessive moisture.
5. Do not attempt to clean the unit with chemical solvents or aerosol cleaners, as this may damage the unit. Dust with a clean dry cloth.
6. Do not use the unit if the electrical power cord is frayed or broken. The power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords and plugs, convenience receptacles, and the point where they exit from the appliance.
7. Do not force switched or external connections in any way. They should all connect easily, without needing to be forced.
8. Always operate the unit with the AC ground wire connected to the electrical system ground. Precautions should be taken so that the means of grounding of a piece of equipment is not defeated.
9. AC voltage must be correct and the same as that printed on the rear of the unit. Damage caused by connection to improper AC voltage is not covered by any warranty.
10. Turn power off and disconnect unit from AC current before making connections.
11. Never hold a power switch in the “ON” position.
12. This unit should be installed in a cool dry place, away from sources of excessive heat, vibration, dust, moisture and cold. Do not use the unit near stoves, heat registers, radiators, or other heat producing devices.
13. Do not block fan intake or exhaust ports. Do not operate equipment on a surface or in an environment which may impede the normal flow of air around the unit, such as a bed, rug, carpet, or completely enclosed rack. If the unit is used in an extremely dusty or smoky environment, the unit should be periodically “blown free” of foreign dust and matter.
14. To reduce the risk of electric shock, do not remove the cover. There are no user serviceable parts inside. Refer all servicing to qualified service personnel. There are no user serviceable parts inside.
15. When moving the unit, disconnect input ports first, then remove the power cable; finally, disconnect the interconnecting cables to other devices.
16. Do not drive the inputs with a signal level greater than that required to drive equipment to full output.
17. The equipment power cord should be unplugged from the outlet when left unused for a long period of time.
18. Save the carton and packing material even if the equipment has arrived in good condition. Should you ever need to ship the unit, use only the original factory packing.
19. Service Information Equipment should be serviced by qualifier service personnel when:
    A. The power supply cord or the plug has been damaged.
    B. Objects have fallen, or liquid has been spilled into the equipment.
    C. The equipment has been exposed to rain
    D. The equipment does not appear to operate normally, or exhibits a marked change in performance
    E. The equipment has been dropped, or the enclosure damaged.

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VGA Matrix Switcher Series

Thank you for purchasing the SB-4140 VGA Matrix Switcher. You will find this unit easy to install and highly reliable but it is essential that you read this manual thoroughly before attempting to use this switcher.

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INTRODUCTION

Congratulations on your purchase of one of the most innovative VGA (RGBHV) 4x4 matrix switching products on the market Today. The SB-4140 is a true Matrix Routing Switcher for VGA (RGBHV) signals.

It has (4) individual VGA (RGBHV) inputs with (4) individual RGBHV outputs. Because it is a matrix router, any input may be routed to any output; or the same input may be routed to all outputs or any combination. It completely eliminates the need to constantly move around VGA video input and output cables.

The SB-4140 is useful for Matrix signals from VGA source devices (such as: Personal computer, Set Top Box, and Satellite Receivers, etc.) To VGA destination devices (Such as LCD Monitors, VGA Monitors, Plasma LCD TV, VGA Projectors, etc.). Selection of inputs is made via the front panel push buttons or an Infrared Remote Control unit or RS-232 control by a computer.

PACKAGE CONTENTS

Check that you have the following components;

- SB-4140 4x4 Matrix Switcher
- IR Remote Control
- Rack Mounts
- RS-232 driver CD (All Windows Operating Systems)
- Users Guide
- AC/DC Adapter: 12VDC, 100mA~230mA
  AC/DC Adaptor Types : CE/UL/SAA/BS

SAFETY PRECAUTIONS

Please read all instructions before attempting to unpack, install or operate this equipment and before connecting the power supply. Please keep the following in mind as you unpack and install this equipment:

- Always follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Never spill liquid of any kind on or into this product.
- Never push an object of any kind into this product through any openings or empty slots in the unit, as you may damage parts inside the unit.
- Do not attach the power supply cabling to building surfaces.
- Use only the supplied power supply unit (PSU). Do not use the PSU if it is damaged.
- Do not allow anything to rest on the power cabling or allow any weight to be placed upon it or any person walk on it.
- To protect the unit from overheating, do not block any vents or openings in the unit housing that provide ventilation and allow for sufficient space for air to circulate around the unit.

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FEATURES & SPECIFICATIONS

FEATURES

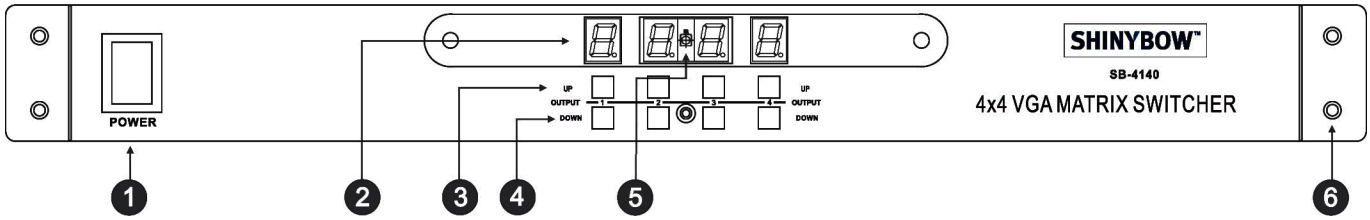
- Supports 4x inputs VGA to 4x VGA outputs Matrix Switcher
- Input signal type VGA (RGBHV)
- Output Signal type VGA to VGA Monitor display
- Higher Video Bandwidth 325MB each path R,G,B signals.
- Supported HD high definition resolutions XGA, SXGA, UXGA, WSXGA, WUXGA
- RS-232 Serial interface via Ethernet control is optional
- Compatible with all VGA Video Monitor devices, Plasma display and Projectors
- Supported RS-232 serial interface protocol commands list
- Control PC RS-232 Drive compatible with win-95/98/2000/xp
- Various User Interface controls:
  - Attached Window based control software for Desktop or NB control by RS-232 port
  - Manual controlled by Front Panel button
  - IR remote control
- Support desktop with Ear mount and 19 inch Rack mountable type panel
- Power supply DC12Volt, Universal Type Switch 100~230VAC, 50/60Hz

SPECIFICATIONS

- **Type of Switcher:** (4) inputs to (4) outputs VGA Matrix Switcher
- **Video Bandwidth:**
  - 380MHz (-3 dB) 200mVp-p
  - 310MHz (-3 dB) 2Vp-p
  - R=325MHz
  - G=325MHz
  - B=325MHz
  - H=110MHz
  - V=110MHz
- **Gain Flatness:** 90Mhz, .1dB
- **Differential Gain Error:** .01% , .1dB
- **Differential Phase Error:** .02, .1dB (RL-150Ω)
- **Fast Settling Time:** 15ns to 0.1%
- **All Hostile Crosstalk:** -84db@5MHz, -54@50MHz
- **Channel Crosstalk:** -56db@100Mhz
- **Slew Rate:** 1000Vlus, G=+1.2VStep
- **High OFF Isolation:** -100dB@10MHz
- **Settling Time:** 50ns to 0.1%
- **Output Current:** 100mA
- **Low power CMOS:** 500uA Quiescent Current
- **Controls:** IR Remote Controller (38KHz), Front panel selection buttons with LED readout
- **Dimensions (WxDxH):** 17.32 x 7.80 x 1.73 in (440x200x44mm)
- **Net Weight (Unit Only):** About 3.85 lb (with metal case)
- **Safety Approvals:** CE, FCC, RoHS(2002/ 95 / EC)
- **Power Voltage Input:** DC 12V@2A

As product improvements are continuous, specifications are subject to change and without notice.

FRONT PANEL



1. POWER ON SWITCH: The power switch turns the unit on and off. The LED will illuminate red to indicate that the switcher is ON and is receiving power

2. SOURCE DEVICE STATUS LED DISPLAY: Channels 1 to 4 shown from LED display illuminates red to indicate that a video source is present on that input.

3. SOURCE DEVICE SELECT UP BUTTONS: A separate output 1 thru 4 source select buttons are provided for each destination.

4. SOURCES SELECT DOWN BUTTONS: Setup the input sources 1 thru 4 channel.

5. IR SENSOR: The IR sensor receives IR commands from the supplied remote controller.

6. 19 INCH EAR MOUNT PAIR: 9 inch 1 RU {1 3/4”) rack mount brackets. Part number: 1U-440L

OPERATING THE UNIT

Once you have connected the switcher as described above, you must be certain that the input are being fed appropriate signals and are not suffering from signal loss due to cabling problems or problems with the source device.

If the input signals to the switcher are appropriate, switch the power switch to <ON> and you should see and hear the signals on the devices you have connected to the various output connectors of the switcher.

POWER AND CONNECTIONS

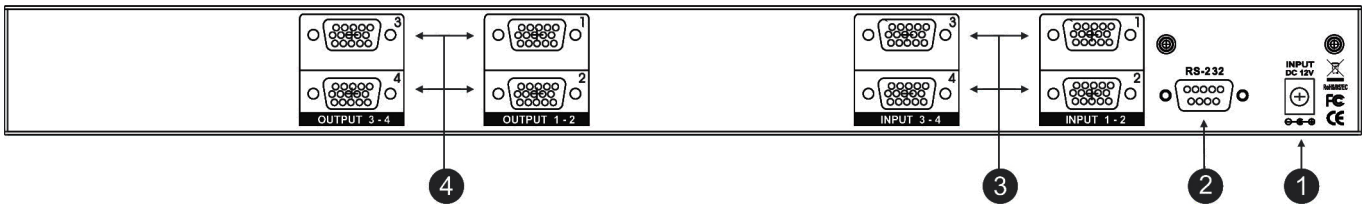
This unit is not disconnected from the AC power source as long as it is connected to the wall outlet. The off state for this unit is called standby mode. In standby mode the unit is designed to consume a reduced quantity of power compared to normal operating modes.

When it is not using the unit for a long period of time, insure that the AC power cord is disconnected from the wall outlet.

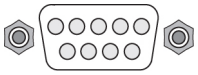
The AC wall outlet should be installed near to the unit and be easily accessible.

Do not plug in or attempt to operate an obviously damaged unit.

BACK PANEL



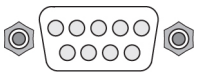
1. DC POWER INLET: The switcher is fitted with a DC power plug input connector. Please ensure that the plug used is of an approved type and is of sufficient current carrying capacity with the correct voltage and connector polarity. 12Volt DC power supply 1A-2A Max.



Power Jack:
DC Jack - Inner OD Ø 2.1 mm (+)
Outside OD Ø 5.5mm (GND)
Power input -12VDC, 1A-2A
Switcher power suppler use universal
Part number: TA007

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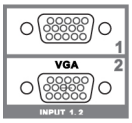
2. RS-232 CONNECTION: RS-232 control port to allow for interfacing to a PC, such as a computer or touch panel control, to the switcher via this DB-9pin Female connector for serial RS-232 control.



Remote port: DB-9pin Female connector

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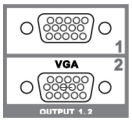
3. INPUTS: 1-4 VGA SOURCES: Connect a signal source of VGA (RGBHV) devise via VGA cable output to 4x VGA Monitor displays.



VGA(RGBHV) Via 1x HD-15p connector
Note: With 1 x female D-Sub connector.

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4. OUTPUTS: 1-4 VGA DESTINATIONS: Connect a signal of VGA via VGA cable output to VGA Monitor displays from 4x VGA input source devices.



VGA(RGBHV) Via 1x HD-15p connector
Note: With 1 x female D-Sub connector.

REMOTE CONTROL

- Ensure the mains voltage supply matches the label on the supplied plug- Pack (+/- 10%).
- Ensure that the power switch is OFF.
- Ensure that all system grounds (earth) are connected to a common point.
- Avoid powering equipment within a system from multiple power sources that may be separated by large distances.
- Connect all audio video sources and destination equipment.
- Power up all source and destination audio-visual sources.
- For each destination output select the appropriate input source by using the front panel input 1-4 select buttons. The supplied IR remote control.
- Or through the RS-232 serial communications port.
- Upon power up the switcher will return to its last used setting before Powered down.

REMOTE CONTROL

1. SWITCH POWER ON or OFF:

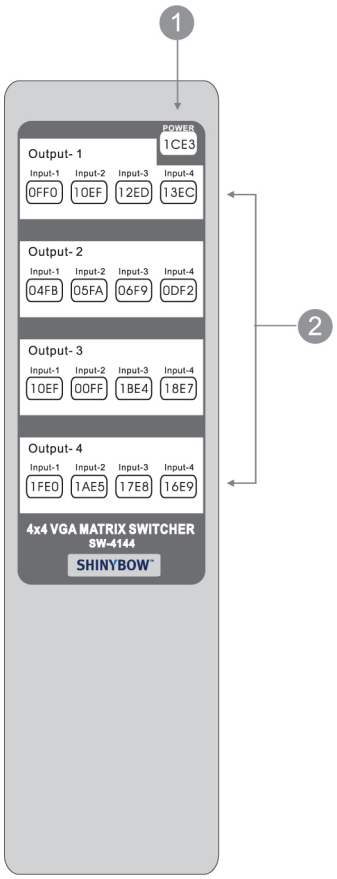
Controller with a power ON and OFF

2. OUTPUTS: 1 - 4 VGA DESTINATION:

Output - 1 : Switch 4x VGA sources to #1 Monitor Display
Output - 2 : Switch 4x VGA sources to #2 Monitor Display
Output - 3 : Switch 4x VGA sources to #3 Monitor Display
Output - 4 : Switch 4x VGA sources to #4 Monitor Display

INPUTS: 1 - 4 VGA DEVICE SOURCES

Input - Source 1: VGA Signal source device #1
Input - Source 2: VGA Signal source device #2
Input - Source 3: VGA Signal source device #3
Input - Source 4: VGA Signal source device #4



HOW TO SETUP IR CODES:

IR TYPE : uPD6121G
POWER ON : 28D7 1CE3
POWER OFF : 28D7 1CE3

OUTPUT#1 / INPUT#1 : 2807 0FF0
OUTPUT#1 / INPUT#2 : 2807 10EF
OUTPUT#1 / INPUT#3 : 2807 12ED
OUTPUT#1 / INPUT#4 : 2807 13EC

OUTPUT#2 / INPUT#1 : 2807 04FB
OUTPUT#2 / INPUT#2 : 2807 05FA
OUTPUT#2 / INPUT#3 : 2807 06F9
OUTPUT#2 / INPUT#4 : 2807 0DF2

OUTPUT#3 / INPUT#1 : 2807 10EF
OUTPUT#3 / INPUT#2 : 2807 00FF
OUTPUT#3 / INPUT#3 : 2807 1BE4
OUTPUT#3 / INPUT#4 : 2807 1BE7

OUTPUT#4 / INPUT#1 : 2807 1FE0
OUTPUT#4 / INPUT#2 : 2807 1AE5
OUTPUT#4 / INPUT#3 : 2807 17E8
OUTPUT#4 / INPUT#4 : 2807 16E9

CONNECTING THE HARDWARE

Please study the panel drawings below and become familiar with the signal input-output, Power requirements plus any controls present.

Before using the switcher, please take the time to make certain that the device you wish to connect to its input is functioning properly in all respects. Verify that the video and audio signals are present and are being displayed properly on a suitable device.

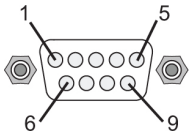
If all is well connect the appropriate cables between the output of the device you wish to distribute to output(s) of the switcher to the carious devices you wish to feed a signal to. Lastly, connect the AC to DC adaptor, connect the DC connector to the switcher first and then plug the adaptor into a functional AC outlet.

RS-232 SERIAL INTERFACE

RS-232 SERIAL INTERFACE CONNECT a PC or CONTROL SYSTEM

RS-232 SERIAL CONNECT

Pin	RS-232	Definition
1	------	Not used
2	TX	Transmitter
3	RX	Receiver
4	------	Not used
5	GND	Ground
6	------	Not used
7	------	Not used
8	------	Not used
9	------	Not used



The Shinybow switcher can be controlled via the RS-232 serial control port to allow for interfacing to a PC, or similar third party control system.

The serial communication parameters are 9600 baud, 8 bit, No Parity and 1 stop bit - this is often referred to as 9600 8N1. When the unit recognizes a complete command it will perform the requested action - there is no delimiter character required.

The unit does not send out a message when a value is changed from the front panel or by IR control. If the unit needs to be controlled via the front panel in addition to the RS-232 control, you should regularly poll the unit status to ensure the control system accurately reflects the current settings.

COMMANDS

To Switch Inputs to Outputs
SBI0XO0Y - Where X is Output Number (1-4) and Y is Input Number (1-4)

Unit will respond with
SBUD0XOY - Where X is Output Number (1-4) and Y is Input Number (1-4)

Example: Send Input 4 to Output 2
SBI07O02 - Send
SBUD07O2 - Rcvd

MORE STUFF FOR SB-4140

Note: Turning the unit System Power Off over RS-232 will extinguish the LED channel display leaving only the Power switch LED on. The Video and Audio outputs will also mute. While the unit is turned off by RS-232 it will continue to accept and act upon switching commands. For example, if the unit is in the off mode (via RS-232) and you send a command to switch an input to an output, that route will complete and the video and audio will now appear on that channel only. The front panel LED channel display for that particular output will also show the input selected (for that single output channel only). The remaining LED's will remain off and video and audio outputs muted. The unit will still return status and change messages in response to commands sent while in Power Off state. A hard reset command (SBALLRST)will return the unit to normal operation and also unlock the front panel.

POWER OFF MODE

SBSYSMOF - Put system into Standby (Soft Power Off)
SBSYSMON - Bring unit out of Standby (Soft Power On)

Unit will respond with
SBALOFAK - Unit is in Standby
SBALONAK - Unit is no longer in Standby

Example: Put Unit in Standby (Soft Power)
SBSYSMOF - Send
SBALOFAK - Rcvd

FRONT PANEL LOCK

Note: Hard resetting the unit will unlock the Front Panel controls.

SBSYSMLK - When front panel is locked, changes can only be made by RS-232
SBSYSMUK - Front Panel Unlock

Unit will respond with
SBSYSLOK - Front Panel has been Locked
SBSYSULK - Front Panel has been Unlocked

Example: Lock Front Panel Buttons
SBSYSMLK -Send
SBSYSLOK -Rcvd

UNIT RESET

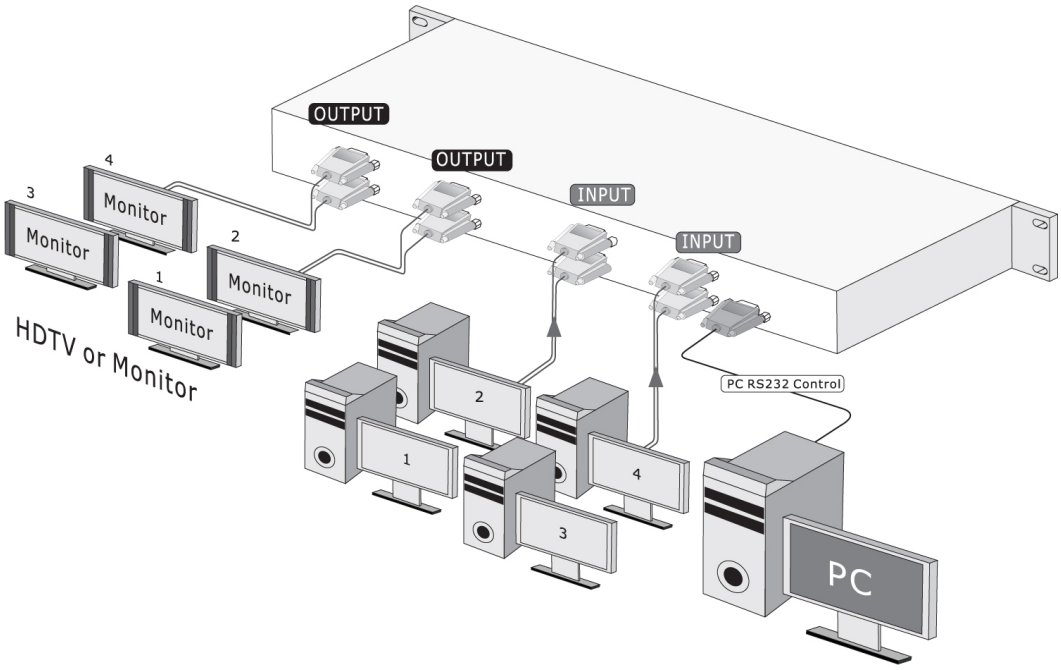
SBALLRST - Reset every output to Input 1

Unit will respond with
SBRSTACK - Unit has reset each Output to Input 1

Example: Reset all outputs to Input 1
SBALLRST - Send
SBRSTACK - Rcvd

TYPICAL APPLICATION

4 X VGA SOURCE DEVICES TO 4 X VGA DISPLAY MATRIX SWITCHER



INSTALLING

CONTROL PORTS:

1. IR REMOTE - IR Remote Controller
2. RS 232 Interface - RS-232 interface system

INPUTS 1 - 4 PORT VGA SOURCE DEVICE SIGNALS: VIDEO - VGA (RGBHV), connector with HD-15p (D-Sub)

OUTPUT 1 - 4 PORT VGA CONNECT TO DISPLAY MONITOR SIGNALS: VIDEO - VGA(RGBHV), connector with HD-15p (D-Sub)

SB-4140 SUPPORTS VGA (4) INPUTS MATRIX TO (4) SWITCH OUTPUTS
SUPPORT CONTROL IR & RS-232 INTERFACE FROM A PC.

LIMITED WARRANTY

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