

DXP A1616



User Manual

- Manual #: RGB-RD-UM-A1616 E001
- Revision: V1.0



DXP A1616·User Manual

Thank you for choosing our products!

In order to allow you to learn how to use the video processor quickly, we bring you the detailed user's guide. You can read the introduction and directions before using the video processor, please read all the information we provide carefully to use our products correctly.

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Safe Operation Summary

The general safety information in this summary is for operating personnel.

Do Not Remove Covers or Panels

There are no user-serviceable parts within the unit. Removal of the top cover will expose dangerous voltages. To avoid personal injury, do not remove the top cover. Do not operate the unit without the cover installed.

Use the Proper Properly

This product is intended to operate from a power source that will not apply more than 230 volts rms between the supply conductors or between both supply conductor and ground. A protective ground connection by way of grounding conductor in the power cord is essential for safe operation.

Ground the Product Properly

This product is grounded through the grounding conductor of the power cord. To avoid electrical shock, plug the power cord into a properly wired receptacle before connecting to the product input or output terminals. A protective-ground connection by way of the grounding conductor in the power cord is essential for safe operation.

Use the Proper Power Cord

Use only the power cord and connector specified for your product. Use only a power cord that is in good condition. Refer cord and connector changes to qualified service personnel.

Use the Proper Fuse

To avoid fire hazard, use only the fuse having identical type, voltage rating, and current rating characteristics. Refer fuse replacement to qualified service personnel.

Do Not Operate in Explosive Dangerous Atmospheres

To avoid explosion, do not operate this product in an explosive atmosphere.

Terms and Equipment Mark in This Manual



WARNING

Highlight an operating procedure, practice, condition, statement, etc, which, if not strictly observed, could result in injury or death of personnel.

Note

Highlights an essential operating procedure, condition or statement.
--



CAUTION

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Amendment Record

The table below lists the changes to the Video Processor User's Guide.

Format	Time	ECO#	Description	Principal
V1.0	2012-12-28	0000#	Release	BIN

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1. Brief Introduction

This chapter is designed to introduce you to the DXP A1616 User Manual. Areas to be covered are:

- [Chapter Structure](#)
- [Manual Usage](#)
- [Terms and Definitions](#)
- [System Overview](#)
- [Application Questions](#)

1. Brief Introduction

Chapter Structure

Chapter Structure

The following chapters provide instructions for all aspects of DXP A1616 operations:

Chapter 1 [Brief Introduction](#)

Chapter 2 [Hardware Introduction](#)

Chapter 3 [Hardware Installation](#)

Chapter 4 [System Setup and Operations](#)

Chapter 5 [Common Questions and Solutions](#)

Appendix A [Specification](#)

Appendix B [Serial Communication Protocol](#)

Appendix C [Contact Information](#)

Appendix D [Software Upgrade](#)

1. Brief Introduction

Manual Usage

Manual Usage

Following are important tips for streamlining your use of this User's Guide in its electronic "PDF" form.

Navigation

Use Acrobat Reader's "bookmarks" to navigate to the desired location. All chapter files have the same bookmark structure for instant navigation to any section. Please note:



- Extensive hyperlinks are provided within the chapters.
- Use Acrobat's "**Go to Previous View**" and "**Return to next View**" buttons to trace your complete navigational path.



- Use the "**Previous Page**" and "**Next Page**" buttons to go to the previous or next page within a file.
- Use Acrobat's extensive search capabilities, such as the "**Find**" tool and "**Search Index**" tool to perform comprehensive searches as required.

Catalogue and Index

Use the Table of Contents bookmarks to navigate a desired topic. Click any item to instantly jump to that section of the guide. You can also use the **Index** to jump to specific topics within a chapter. Each page number in the **Index** is a hyperlink.

General Operations

To ensure trouble-free operation, please follow all procedures as listed below:

- For detailed installation instructions, refer to chapter 3 "Hardware Installation" on page 22.
- For system setup and operations, refer to Chapter 4, "System Setup and Operations" on page 24.

Should you have any questions regarding the installation or operation of DXP A1616, please consult with the factory. Refer to Appendix C, "Contact Information" on page 44 for contact information.

1. Brief Introduction

Terms and Definitions

Terms and Definitions

The following terms and definitions are used throughout this guide;

- **"ASCII"**: American Standard for Information Interchange. The standard code consisting of 7-bit coded characters (8 bits including parity check) used to exchange information between data processing systems, data communication systems, and associated equipment. The ASCII set contains control characters and graphic characters.
- **"Aspect ratio"**: The relationship of the horizontal dimension to the vertical dimension of an image. In viewing screens, standard TV is 4:3, or 1.33:1; HDTV is 16:9, or 1.78:1. Sometimes the ":1" is implicit, making TV = 1.33 and HDTV = 1.78.
- **"AV"**: Audio visual or audio video.
- A **"Background"** is an unscaled source, typically originating from a computer. A background source appears at the system's lowest priority — visually in back of all other sources.
- **"Baudrate"**: Named of J.M.E. Baudot, the inventor of the Baudot telegraph code. The number of the electrical oscillations per second, called baud rate. Related to, but not the same as, transfer rate in bits per second (bps).
- **"Blackburst"**: The video waveform without the video elements. It includes the vertical sync, horizontal sync, and the chroma burst information. Blackburst is used to synchronize video equipment to align the video output. One signal is normally used to set up an entire video system or facility. Sometimes it is called House sync.
- **"BNC"**: Bayonet Neill-Concel man. A cable connector used extensively in television and named for its inventors. A cylindrical bayonet connector that operates with a twist-locking motion. To make the connection, align the two curved grooves in the collar of the male connector with the two projections on the outside of the female collar, push, and twist. This allows the connector to lock into place without tools.
- **"Brightness"**: Usually refers to the amount or intensity of video light produced on a screen without regard to color. Sometimes called "black level."
- **"CAT 5"**: Category 5. Describes the network cabling standard that consists of four unshielded twisted pairs of copper wire terminated by RJ-45 connectors. CAT 5 cabling supports data rates up to 100 Mbps. CAT 5 is based on the EIA/TIA 568 Commercial Building Telecommunications Wiring Standard.
- **"Color bars"**: A standard test pattern of several basic colors (white, yellow, cyan, green, magenta, red, blue, and black) as a reference for system alignment and testing. In NTSC video, the most commonly used color bars are the SMPTE standard color bars. In PAL video, the most commonly used color bars are eight full field bars. In the computer, the most commonly used color bars are two rows of reversed color bars.
- **"Color burst"**: In color TV systems, a burst of sub-carrier

1. Brief Introduction

Terms and Definitions

frequency located on the back porch of the composite video signal. This serves as a color synchronizing signal to establish a frequency and phase reference for the chroma signal. Color burst is 3.58 MHz for NTSC and 4.43 MHz for PAL.

- **“Color temperature”**: The color quality, expressed in degrees Kelvin (K), of a light source. The higher the color temperature, the bluer the light. The lower the temperature, the redder the light. Benchmark color temperature for the A/V industry includes 5000°K, 6500°K, and 9000°K.
- **“Contrast ratio”**: The ratio of the high light output level divided by the low light output level. In theory, the contrast ratio of the television system should be at least 100:1, if not 300:1. In reality, there are several limitations. In the CRT, light from adjacent elements contaminate the area of each element. Room ambient light will contaminate the light emitted from the CRT. Well-controlled viewing conditions should yield a practical contrast ratio of 30:1 to 50:1.
- **“DVI”**: Digital Visual Interface. The digital video connectivity standard that was developed by DDWG (Digital Display Work Group). This connection standard offers two different connectors: one with 24 pins that handles digital video signals only, and one with 29 pins that handles both digital and analog video.
- **“EDID”**: Extended Display Identification Data – EDID is a data structure used to communicate video display information, including native resolution and vertical interval refresh rate requirements, to a source device. The source device will then output the optimal video format for the display based on the provided EDID data, ensuring proper video image quality. This communication takes place over the DDC – Display Data Channel.
- **“Ethernet”**: A Local Area Network (LAN) standard officially known as IEEE 802.3. Ethernet and other LAN technologies are used for interconnecting computers, printers, workstations, terminals, servers, etc. within the same building or campus. Ethernet operates over twisted pair and over coaxial cable at speeds starting at 10Mbps. For LAN interconnectivity, Ethernet is physical link and data link protocol reflecting the two lowest layers of the OSI Reference Model.
- **“Frame”**: In interlaced video, a frame is one complete picture. A video frame is made up of two fields, or two sets of interlaced lines. In a film, a frame is one still picture of a series that makes up a motion picture.
- **“Gamma”**: The light output of a CRT is not linear with respect to the voltage input. The difference between what you should have and what is actually output is known as gamma.
- **“HDMI” - High – Definition Multimedia Interface**: An interface used primarily in consumer electronics for the transmission of uncompressed high definition video, up to 8 channels of audio, and control signals, over a single cable. HDMI is the de facto standard for HDTV displays, Blu-ray Disc players, and other HDTV electronics. Introduced in 2003, the

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Terms and Definitions

- HDMI specification has gone through several revisions.
- **"HDSDI"**: The high-definition version of SDI specified in SMPTE-292M. This signal standard transmits audio and video with 10 bit depth and 4:2:2 color quantization over a single coaxial cable with a data rate of 1.485 Gbit/second. Multiple video resolutions exist including progressive 1280x720 and interlaced 1920x1080 resolutions. Up to 32 audio signals are carried in the ancillary data.
 - **"JPEG" (Joint photographic Expects Group)**: Commonly used method of lost compression for photographic images using a discreet cosine transfer function. The degree of compression can be adjusted, allowing a selectable tradeoff between storage size and image quality. JPEG typically achieves 10:1 compression with little perceptible loss in image quality. Produces blocking artifacts.
 - **"MPEG"**: Motion Picture Expect Group. A standard committee under the auspices of the International Standards Organization working on algorithm standards that allow digital compression, storage and transmission of moving image information such as motion video, CD-quality audio, and control data at CD-ROM bandwidth. The MPEG algorithm provides inter-frame compression of video images and can have an effective compression rate of 100:1 to 200:1.
 - **"NTSC"**: The color video standard used in North America and some other parts of the world created by the National Television Standards Committee in the 1950s. A color signal must be compatible with black-and-white TV sets. NTSC utilizes an interlaced video signals, 525 lines of resolution with a refresh rate of 60 fields per second (60 Hz). Each frame is comprised of two fields of 262.5 lines each, running at an effective rate of 30 frames per second.
 - **"PAL"**: Phase Alternate Line. A television standard in which the phase of the color carrier is alternated from line to line. It takes four full pictures (8 fields) for the color-to-horizontal phase relationship to return to the reference point. This alternation helps cancel out phase errors. For this reason, the hue control is not needed on a PAL TV set. PAL, in many transmission forms, is widely used in Western Europe, Australia, Africa, the Middle East, and Micronesia. PAL uses 625-line, 50-field (25 fps) composite color transmission system.
 - **"Operator"**: Refers to the person who uses the system.
 - **"PIP"**: Picture-in-Picture. A small picture within a larger picture created by scaling down one of the images to make it smaller. Each picture requires a separate video source such as a camera, VCR, or computer. Other forms of PIP displays include Picture-by-Picture (PBP) and Picture-with-Picture (PWP), which are commonly used with 16:9 aspect display devices. PBP and PWP image formats require a separate scaler for each video window.
 - **"Polarity"**: The positive and negative orientation of a signal.

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Terms and Definitions

Polarity usually refers to the direction or a level with respect to a reference (e.g. positive sync polarity means that sync occurs when the signal is going in the positive direction).

- **"RJ-45"**: Registered Jack-45. A connector similar to a telephone connector that holds up to eight wires used for connecting Ethernet devices.
- **"RS-232"**: An Electronic Industries Association (EIA) serial digital interface standard specifying the characteristics of the communication path between two devices using either DB-9 or DB-25 connectors. This standard is used for relatively short-range communication and does not specify balanced control lines. RS-232 is a serial control standard with a set number of conductors, data rate, word length, and type of connector to be used. The standard specifies component connection standards with regard to the computer interface. It is also called RS-232-C, which is the third version of the RS-232 standard, and is functionally identical to the CCITT V.24 standard.
- **"Saturation"**: Chroma, chroma gain. The intensity of the color, or the extent to which a given color in any image is free from white. The less white in a color, the truer the color or the greater its saturation. On a display device, the color control adjusts the saturation. Not to be confused with the brightness, saturation is the amount of pigment in a color, and not the intensity. Low saturation is like adding white to the color. For example, a low-saturated red looks pink.
- **"Scaling"**: A conversion of a video or computer graphic signal from a starting resolution to a new resolution. Scaling from one resolution to another is typically done to optimize the signal for input to an image processor, transmission path or to improve its quality when presented on a particular display.
- **"SDI"**: Serial Digital Interface. The standard based on a 270 Mbps transfer rate. This is a 10-bit, scrambled, polarity independent interface with common scrambling for both component ITU-R 601 and composite digital video and four channels of (embedded) digital audio.
- **"Seamless Switching"**: A feature found on many video switchers. This feature causes the switcher to wait until the vertical interval to switch. This avoids a glitch (temporary scrambling) which normally is seen when switching between sources.
- **"SMPTE"**: Society of Motion Picture and Television Engineers. A global organization, based in the United States that sets

1. Brief Introduction

Terms and Definitions

standards for base band visual communications. This includes film as well as video and television standards.

- **"S-video"**: A composite video signal separated into the luma ("Y" is for luma, or black and white information; brightness) and the chroma ("C" is an abbreviation for chroma, or color information).
- **"Sync"**: Synchronization. In video, sync is a means of controlling the timing of an event with respect to other events. This is accomplished with timing pulses to insure that each step in a process occurs at the correct time. For example, horizontal sync determines exactly when to begin each horizontal scan line. Vertical sync determines when the image is to be refreshed to start a new field or frame. There are many other types of sync in video system. (Also known as "sync signal" or "sync pulse.")
- **"TCP/IP"**: Transmission Control Protocol/Internet Protocol. The communication protocol of the Internet. Computers and devices with direct access to the Internet are provided with a copy of the TCP/IP program to allow them to send and receive information in an understandable form.
- **"USB"**: Universal Serial Bus. USB was developed by seven PC and telecom industry leaders (Compaq, DEC, IBM, Intel, Microsoft, NEC, and Northern Telecom). The goal was easy plug-and-play expansion outside the box, requiring no additional circuit cards. Up to 127 external computer devices may be added through a USB hub, which may be conveniently located in a keyboard or monitor. USB devices can be attached or detached without removing computer power. The number of devices being designed for USB continues to grow, from keyboards, mice, and printers to scanners, digital cameras, and ZIP drives.
- **"VESA"**: Video Electronics Standards Association. A nonprofit number organization dedicated to facilitating and promoting personal computer graphics through improved standards for the benefit of the end-user. www.vesa.org
- **"VGA"**: Video Graphics Array. Introduced by IBM in 1987, VGA is an analog signal with TTL level separate horizontal and vertical sync. The video outputs to a 15-pin HD connector and has a horizontal scan frequency of 31.5 kHz and vertical frequency of 70 Hz (Mode 1, 2) and 60 Hz (Mode 3). The signal is non-interlaced in modes 1, 2, and 3 and interlaced when using the 8514/A card (35.5 kHz, 86 Hz) in mode 4. It has a pixel by line resolution of 640×480 with a color palette of 16

1. Brief Introduction

Terms and Definitions

bits and 256,000 colors.

- **"YCrCb"**: Used to describe the color space for interlaced component video.
- **"YPbPr"**: Used to describe the color space for progressive-scan (non-interlaced) component video.

1. Brief Introduction

System Overview

System Overview

Matrix switching system is the whole cross high performance device, used for signal switching. Mainly used in television broadcasting system signal switching and exchange, multimedia meeting room, large screen projection display engineering, government conference room, hospital medical discussion conference room, television signal switching, interactive multimedia classrooms, and military command video conference room.

RGBlink strong technical strength determines the high quality of AVDXP series matrix switchers. We choose the chips with best performance, elaborate design for every way of switchers, to ensure the high quality of switchers. After rigorous testing, VGA switching signal bandwidth is 500 MHz (-3db), support resolution of 1024x768 60Hz to 2048x1536 60Hz, fully meet various strict requirements and high quality occasions. Video for 250MHz (-3db), can not only support various of video signals, but also meet the future high-definition television (HDTV) bandwidth requirements. RGBlink matrix switchers provide the good man-machine interface for users.

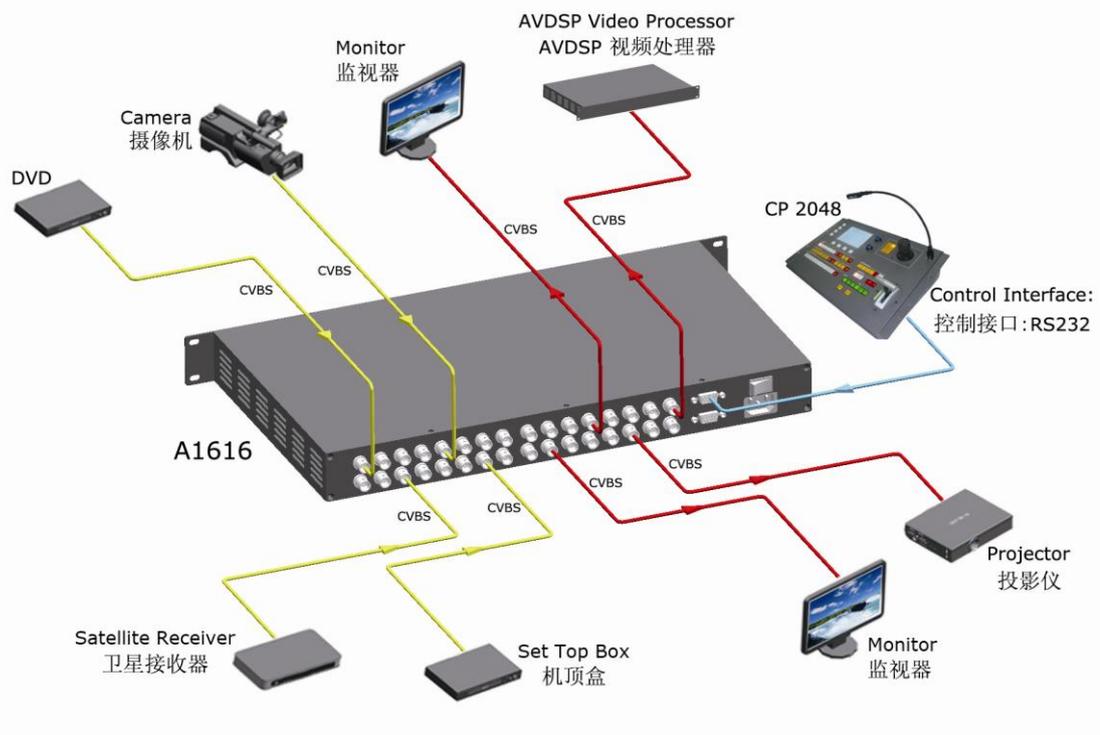
Switchers in this series are equipped with monochromatic LCD, RS232 communication interface, with outage protect function, can read and store up to 24 user scenarios. The system is equipped with multiple sets of serial instructions, can in conjunction with computer, remote control system or all kinds of distal control equipment.

1. Brief Introduction

Application Questions

Application Questions

RGBlink offers solutions to demanding technical problems. Any application questions, or required further information, please contact with our Customer Support Engineers. Refer to Appendix C for contact details.



2. Hardware Introduction

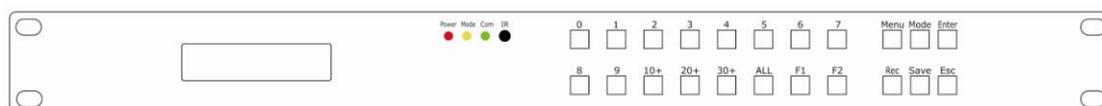
In This Chapter

This chapter provides detailed information about the DXP V1616 hardware. The following topics are discussed:

- [DXP A1616 Front Panel Button and Rear panel Interface](#)

DXP A1616 Front Panel Button and Rear panel Interface

Brief introduction of DXP A1616 front panel as the following picture:

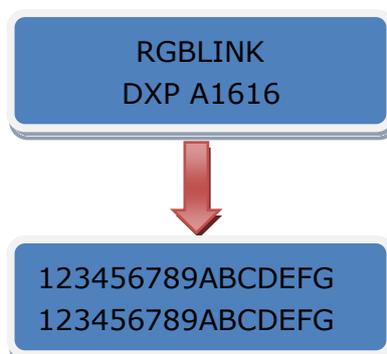


The front panel consist of buttons and LCD screen and status LED, button used to control command input, device configuration is Chinese and English LCD composed of 128 * 16 points, used to display the operation and running state, status LED show the user's operating status.

LCD Panel

Used to display DXP A1616 current status and prompting message. Plug power and push to ON. LCD module on the front panel will show RGBLINK and go into self verification. For the first setup, it is default for factory setting. With front panel keyboard, user can operate DXP V1616 through the menus on LCD panel.

DXP A1616 front panel as shown in figure:



Function Button

【0】 ~ 【9】 Digital button: selection button for input and output channel, used to set video signal input and output channel, also, can be used to number choice of save or call saving modes.

Note

【0】 button can also be used to shut down the channel output.

【10+】、【20+】、【30+】+system function button, means decimal; e.g.: "25", first push 【20+】 , then push 【5】 , it means input"25".

【20+】 、 【30+】 function reuse button:

Push【Menu】to enter the menu, press【20+】UP arrow keys,【30+】DOWN arrow keys, and select the menu option.

Note

【20+】 can be used as UP arrow keys,
【30+】 can be used as DOWN arrow keys.

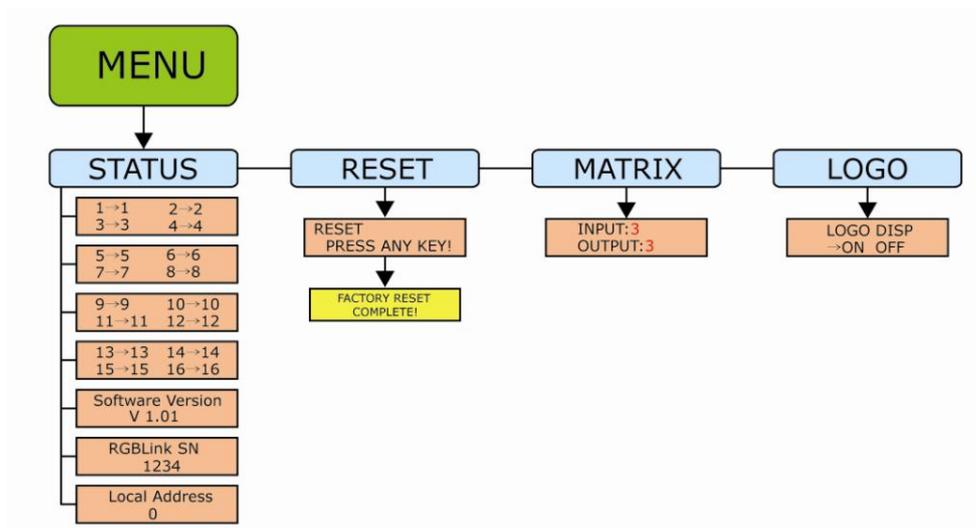
【ALL】 Used as distributor selection, can set a certain input to all outputs.

e.g.: Push【ALL】→【5】→【Enter】, it means input 5 has be distributed to all outputs.

【F1】 Fast call user save mode 1;

【F2】 Fast call user save mode 2;

【Menu】 Related menu as follows:



【Mode】 Audio and video switching key, used to select 3 modes, such as "Audio and video sync switching AV", "Audio switching A", "Video switching V", it is default for "Audio and video sync switching AV".

For example: when select "MODE" for "V", it means it is only video matrix currently and audio keep still. "2" + "4" + "ENTER", means video 2 is separately switched to output 4. (This function is not immediately available for V1.0 version).

【Enter】 confirm button, when functional input is confirm button, and press **【 Enter 】** before enter menu, it displays the current input/output state, "/" means empty, and not choose input signal source.

【Rec】 Call saving mode selection key, can call saving user mode, range for: **【0】 ~ 【24】** , a total of 25 kinds of call saving mode. For example: Push **【Rec】** → **【3】** → **【Enter】** , it means call saving mode3.

Note

【 0 】 is the default input and output one-to-one saving mode. That is input **【 1 】** is corresponding to output **【 1 】** , input **【 2 】** is corresponding to output **【 2 】** ...

【Save】 Saving modes selection key, can save all current switching channels and current states, range for: **【 1 】 ~ 【 24 】** , a total 24 kinds of saving modes.

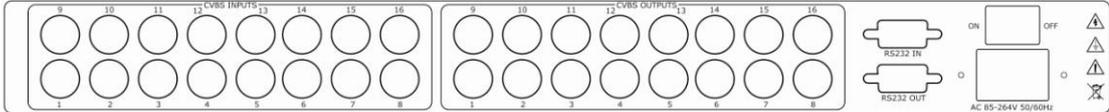
For example: Push **【Save】** → **【6】** → **【Enter】** , it means the current state is saved to save mode6.

Note

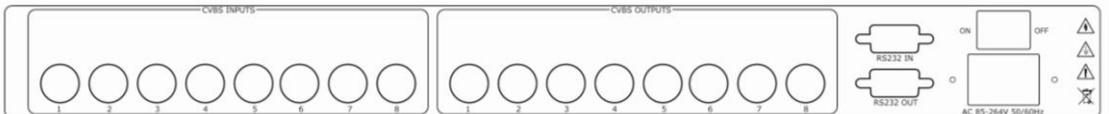
If power fails suddenly, the device will automatically save to the current using mode, and do not need reset when power on.

【Esc】 The button exits the current state to the level state.

Brief introduction of DXP A1616 rear panel as the following picture:



Brief introduction of DXP A0808 rear panel as the following picture:



The port marked with "CVBS INPUTS" is input port, connecting the signal source. Can receive standard video signal from player, camera and so on. If input signal through BNC interface, it supports resolution 480i and 576i; And support composite signals include: PAL, NTSC and SECAM.

The port marked with "VGA OUTPUTS" is output port, connecting monitor, projectors and other display device.

RS232 IN is the interface connecting serial communication interface of RS232 control protocol, can connect central control device, such as CP 2048.

RS232 OUT is the serial communication interface of multiple devices cascading control, can connect many sets of DXP devices.

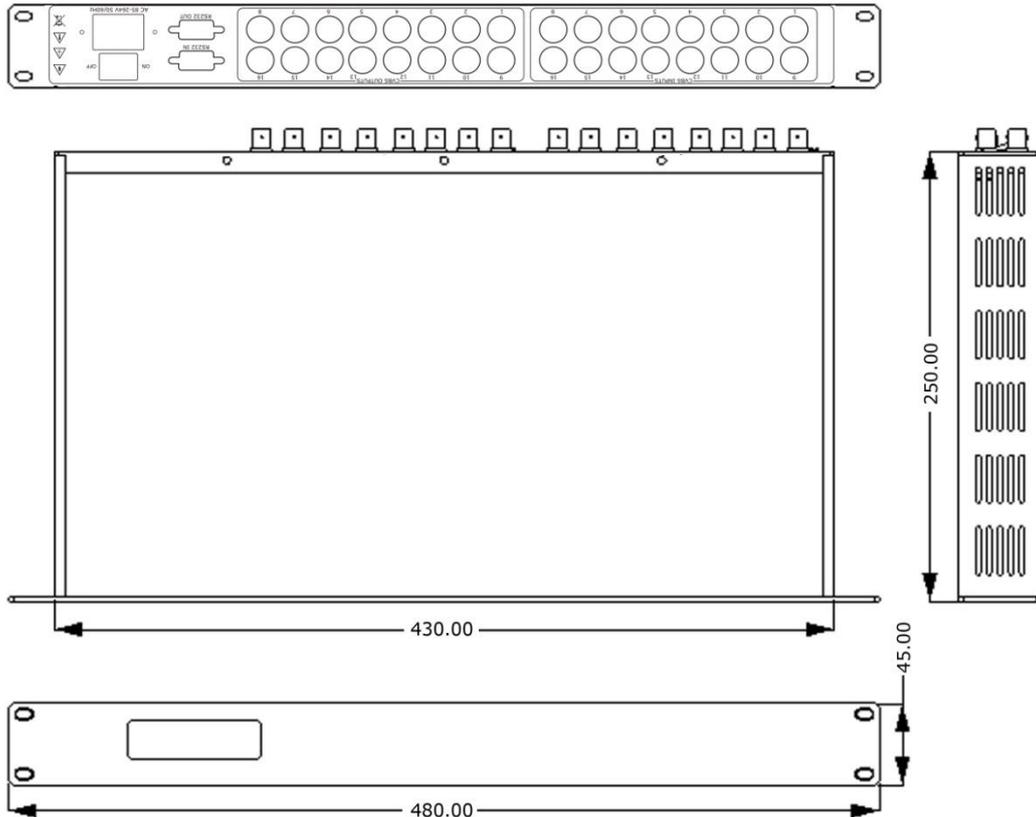
Power and switch: AC 90-264V 3.8A 50/60Hz IEC-3.

3. Hardware Installation

In This Chapter

This chapter provides comprehensive installation instruction for DXP A1616 hardware:

Following is the size of DXP A1616 for your reference:



Safety Precautions

For all DXP A1616 processor installation procedures, please observe the following important safety and handling rules to avoid damage to yourself and the equipment.

- To protect users from electric shock, ensure that the chassis connects to earth through the ground wire provided in the AC power Cord.
- The AC Socket-outlet should be installed near the equipment and be easily accessible.

Unpacking and Inspection

Before opening DXP A1616 process shipping box, inspect it for damage. If you find any damage, notify the shipping carrier immediately for all claims adjustments. As you open the box, compare its contents against the packing slip. If you find any shortages, contact your sales representative.

Once you have removed all the components from their packaging and checked that all the listed components are present, visually inspect the system to ensure there was no damage during shipping. If there is damage, notify the shipping carrier immediately for all claims adjustments.

Site Preparation

The environment in which you install your DXP A1616 should be clean, properly lit, free from static, and have adequate power, ventilation and space for all components.

4. System Setup and Operations

In This Chapter

This chapter focuses on system setup and operation, mainly including the following contents:

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How to switch between input and output channel

DXP A1616 can rapidly switch any way signals by front panel buttons, specific operations are as follows:

1. Press front panel number button, select the input way, such as choosing [3] for input way:



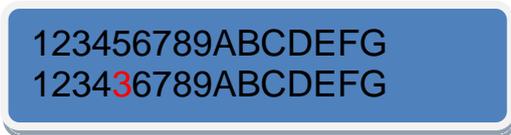
INPUT:3
OUTPUT:

2. Press again front panel number button, select the output way, such as choosing [5] for output way:



INPUT:3
OUTPUT:5

3. After selection, press 【ENTER】 to confirm.



123456789ABCDEFG
123436789ABCDEFG

Note

Input way: currently connect way for switching signal;

Output way: the connect way of peripheral display device.

【1】 ~ 【9】 button on the panel means way1 to way9. Way above 10 can be selected combined 【10+】 with 【0】 ~ 【6】 button.

How to switch from one input to all outputs

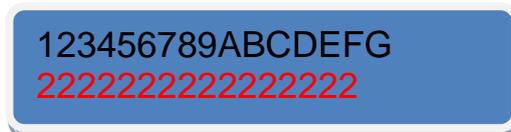
1. Press button on front panel, for example, choose **【2】** .
2. Press **【ALL】** , and finish switching input2 to all outputs.

Also, you can get the same operation effect by the following ways:

1. Press button on front panel, for example, choose **【ALL】** .
2. Choose input way, for example, button **【2】** .



3. Press **【ENTER】** to confirm.



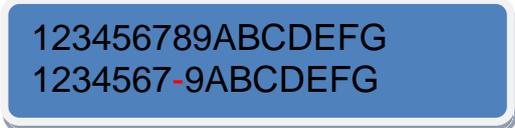
How to close one output channel

1. Press button **【0】** on front panel.
2. Choose output way, for example, button **【8】** .



INPUT:0
OUTPUT:8

3. Press **【ENTER】** to confirm.



123456789ABCDEFG
1234567-9ABCDEFG

How to close all output channels

1. Press button **【0】** on front panel.
2. Press button **【ALL】** on front panel.



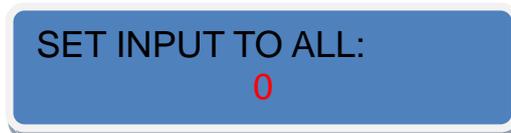
INPUT:0
OUTPUT:ALL



123456789ABCDEFG

Also, you can get the same operation effect by the following way:

1. Press button **【ALL】** on front panel.
2. Press button **【0】** on front panel.



SET INPUT TO ALL:
0

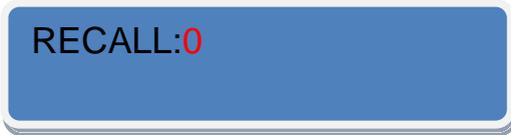
3. Press **【ENTER】** to confirm.



123456789ABCDEFG

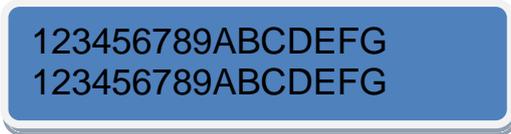
How to set one-to-one correspondence for input and output channel

1. Press button **【REC】** on front panel.
2. Press button **【0】** on front panel.



RECALL:0

3. Press **【ENTER】** to confirm.



123456789ABCDEFG
123456789ABCDEFG

How to save pre-set input and output channel

1. Press button **【SAVE】** on front panel.
2. Can select 24 modes from button **【1】 ~ 【24】** , for example, choose button **【2】** .



3. Press **【ENTER】** to confirm.

How to call pre-set input and output channel saving mode

1. Press button **【REC】** on front panel;
2. Can select 25 modes from button **【0】 ~ 【24】** , for example, choose button **【7】** ;



3. Press **【ENTER】** to confirm.

Note

【0】 is default for one-to-one correspondence for input and output way. That is input**【1】** is corresponding to output **【1】** , input **【2】** is corresponding to output **【2】** ...

How to factory reset

1. Press button **【MENU】** on front panel.



2. Press button **【30+】** (reuse for DOWN arrow key, button **【20+】** reuse for UP arrow key) , make RESET option for selected state.



3. Press **【ENTER】** to confirm and enter the initialization interface.



4. Press any key according to the LCD hint and complete factory reset.

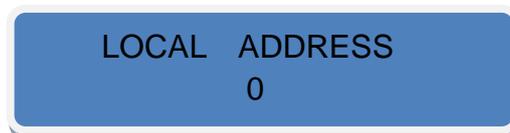
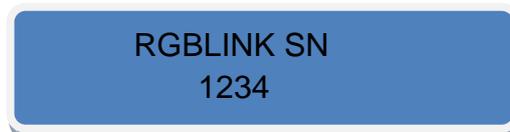
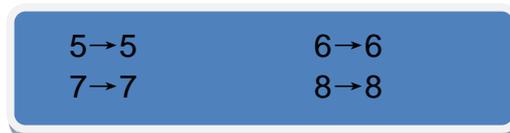
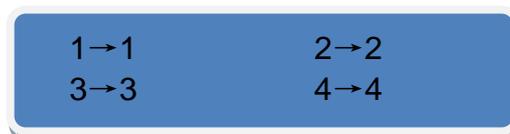


How to read equipment related information

1. Press button **【MENU】** on front panel.



2. It is default for STATUS option, if it is not selected, press **【30+】** or **【20+】** (Now **【30+】** reuse for DOWN arrow key, button **【20+】** reuse for UP arrow key) and select STATUS.
3. Press **【ENTER】** to confirm, read the information by button **【30+】** DOWN arrow key or button **【20+】** UP arrow key, specific as follows.



How to set LOGO display when power on

1. Press button **【MENU】** on front panel.



2. Press **【30+】** or **【20+】** (Now **【30+】** reuse for DOWN arrow key, button **【20+】** reuse for UP arrow key) and select LOGO.



3. Press **【ENTER】** to confirm, and enter LOGO switch setting, LOGO ON or OFF at boot can be set.



5. Common Questions and Solutions

In this chapter

This chapter mainly introduces common fault problems and solutions of the video processor, specific content as follows:

1) When there is ghost in matrix peripheral display device images, for example, the projector has ghost, generally, it is not caused by the host:

- Maybe the projector is not adjusted probably or the wire quality is not standard, adjusting the projector button or replacing the wire is needed.
- Maybe the wire is too long and cause signal attenuation, adding a long wire drive is needed.
- Maybe hybrid installation with the 220V high voltage.

2) When there is color loss or no video signal output, maybe it is caused by poor contact of video interface or break.

3) When COM (generally refers to: computer serial port) can not control the matrix, check if the communication port that controls software set is corresponding to device serial port; Check if the computer communication port is in good condition.

4) No corresponding image output when matrix switching:

- Check if the corresponding input has any signals, (or test with oscilloscope or multimeter). If there is no signal input, may be the input connection is broken or joint is loose, you can replace the connecting line.
- Check if the corresponding output end has any signals, (or test

with oscilloscope or multimeter) if there is no signal output, maybe the input connections is broken or joint is loose, you can replace the connecting line.

- Check if the output port is in accord with the controlled port.
- If not belong to above three circumstances, maybe it is caused by host internal fault, please send to professional for maintenance.

5) If there is no display in LCD and no reaction for operation, please check if the power input is good contacts.

6) If the output image is disturbed, maybe the input/output devices without good ground.

7) If there is obvious electrostatic when drawing or inserting audio and video interface, maybe the power ground without good ground, please ground with the right way, otherwise, it will easily damage the host and shorten the host life.

8) LCD display is normal, communication port has return code, but no image output or no audio output:

- Maybe the AV interface is loose, you can just plug it tightly;
- Maybe it is short connection, you can just change it;
- Maybe wire is break, you can just change it.

9) If matrix panel button, communication port can not be controlled, maybe host internal is damaged, please send to professional for maintenance.

A. Specification

CVBS Input	
Number of Inputs	16
Connector	Standard BNC Socket
Supported Standard	PAL/NTSC
Signal	1Vpp±3db (0.7V Video+0.3v Sync) 75 ohm
Supported Resolution	480i,576i
CVBS Output	
Number of Outputs	16
Connector	PAL/NTSC
Supported Standard	1Vpp±3db (0.7V Video+0.3v Sync) 75ohm
Function	
Input channel matrix output	Support every input channel signal matrix to any output channel
Extras	
Communication	RS232
Power Supply	85-264V 2.1A IEC-3
Work Environment	0°C~45°C
Stored Environment	10% to 90%
Product Warranty	3 year parts and labor warranty

B. Serial Communication Protocol

Serial protocol

Baud rate 115200 BPS; 1 bit start bit; 1 bit stop bit; No parity bit;

Protocol data format

Sending data format as follows, defined as shown in table 1.

ADDR * SN * CMD * DAT1 * DAT2 * DAT3 * DAT4 * CHKSUM
--

Table 2 sending data format definition

Symbol	Byte	Definition	Note
ADDR	1	Address	
SN	1	Used for transmission flow controlling	
CMD	1	Command type	
DAT1	1		
DAT2	1		
DAT3	1		
DAT4	1		
CHKSUM	1	All protocol data	

Receiving data format as follows, defined as shown in table 3.

ADDR * SN * CMD * DAT1 * DAT2 * DAT3 * DAT4 * CHKSUM
--

Table 4 receiving data format definition

Symbol	Byte	Definition	Note
ADDR	1	Address	Not used
SN	1	Used for transmission flow controlling	
CMD	1	Command type	
DAT1	1		
DAT2	1		
DAT3	1		
DAT4	1		
CHKSUM	1	All protocol data	

$CHKSUM = ADDR + SN + CMD + DAT1 + DAT2 + DAT3 + DAT4 .$

SN is used for flow controlling, with beginning connection settings SN = 0, each command PC send, SN plus one. The back command lower PC send should be consistent with the receiving SN command. Lower PC should at least cache five receiving commands. PC should well flow control according to SN sending command and SN receiving command. The premise that PC sends the 5th command is already received the first command reply. You can reduce the sending command and wait for receiving time by using SN flow control.

Frame format

Sending and receiving frame format as follows, including protocol data uses ASCII code, such as 0 x02 means 0 x30, 0x32.

1) Send

<	T	Protocol data	>
1	1	16	1

2) Receive

<	F	Protocol data	>
1	1	16	1

Go back following data when receive does not support command or error:

Symbol	Byte	Definition	Note
CMD	1	CMD	
DAT1	1	0xFF	
DAT2	1	0xFF	
DAT3	1	0xFF	
DAT4	1	0xFF	

Basic Setting

Model

Symbol	Byte	Definition	Note
CMD	1	0x68	
DAT1	1	0x01(Read)	
DAT2	1	Specification	

DAT3	1	Specification	
DAT4	1	0 (no use)	

DAT2 = 0x16 DAT3= 0x16 Specification DXP A1616,DAT2 and DAT3 means matrix size if there is enable customers setting model.

DAT2 = 0x08 DAT3= 0x08 Specification DXPV0808

Factory Reset:

Symbol	Byte	Definition	Note
CMD	1	0x68	
DAT1	1	0x06 (Factory Reset)	
DAT2	1	0 (no use)	
DAT3	1	0 (no use)	
DAT4	1	0 (no use)	

Saving Mode Setting:

Symbol	Byte	Definition	Note
CMD	1	0x68	
DAT1	1	0x08(Save) 0x09 (Call)	
DAT2	1	1-24 (1~24 saving modes)	
DAT3	1	0 (no use)	
DAT4	1	0 (no use)	

Read/write matrix information:

Symbol	Byte	Definition	Note
CMD	1	0x70	
DAT1	1	0x10 (Write) 0x11(Read)	
DAT2	1	Output way No. (0-16 or ff)	
DAT3	1	Input way No. (0-16)	
DAT4	1	0 (no use)	

Index according to the output way when read the matrix information.

Input way = 0 Output way = 1-16 means close the corresponding output way

Input way = 0 Output way = 0 means close all output ways

Input way= 0 Output way = 0 Command is illegal, no treatment

Input way =1-16 Output way = 1-16 means switch the corresponding way

Input way = 1-16 Output way = ff means will switch input way to output way

Modify baud rate:

Symbol	Byte	Definition	Note
CMD	1	0x68	
DAT1	1	0x16 (write) USART1 baud rate	
DAT2	1	0(19200) , 1(38400), 2(57600), 3(115200)	
DAT3	1	0 (no use)	
DAT4	1	0 (no use)	

Read and write the I2C register:

Symbol	Byte	Definition	Note
CMD	1	0x69	
DAT1	1	0x00~0xFF(Device address) (odd read, even write)	
DAT2	1	0x00~0xFF (Register address)	
DAT3	1	0x00~0xFF (Register value)	
DAT4	1	0 (no use)	

Read board software version number:

Symbol	Byte	Definition	Note
CMD	1	0x6A (Regulate other function)	
DAT1	1	0x01(read) Read software version number	
DAT2	1	0~255 (Version number high)	
DAT3	1	0~255 (Version number low)	
DAT4	1	0	

Display mode: high. Low. Such as: 1.1

Read and write series number:

Symbol	Byte	Definition	Note
CMD	1	0x6A (Regulate other function)	
DAT1	1	0x10(write) 0x11(read) series number	
DAT2	1	0~255 (Series number high)	
DAT3	1	0~255 (Series number low)	
DAT4	1	0	

For example: high for 0x12, low for 0x34, then series number is 1234.

Read and write communication address (not IP address):

Symbol	Byte	Definition	Note
CMD	1	0x6A (Regulate other function)	
DAT1	1	0x20(write) 0x21(read) Local address	
DAT2	1	0~99(Local address) 0 means broadcast address	
DAT3	1	0(no use)	
DAT4	1	0(no use)	

Local address is default for 0.

LOGO Information Setting:

Symbol	Byte	Definition	Note
CMD	1	0x68	
DAT1	1	0xf2	
DAT2	1	0(no use)	
DAT3	1	0(no use)	
DAT4	1	0(no use)	

PC send: <Set LOGO information>+128BYTE (block data) +1BYTE (checksum)

Lower PC reply: <Set LOGO information>

Block data content: 0-15 customer and manufacturer information
20-35 customer and device information

Information not reach 16 bytes will be filled by '\ 0'

LOGO Display Parameters Setting:

Symbol	Byte	Definition	Note
CMD	1	0x68	
DAT1	1	0xf3	
DAT2	1	1/0 Open/Close LOGO display	
DAT3	1	1/0 Display/Cancel display customer LOGO	
DAT4	1	1-10 boot LOGO display time (second)	

Customer LOGO Display Parameters:

Symbol	Byte	Definition	Note
CMD	1	0x68	
DAT1	1	0xf0	
DAT2	1	0-15 Show customers and manufacturer information initial column	
DAT3	1	0-15 Show customers and device information initial column	
DAT4	1	0(no use)	

Set customer LOGO display parameter is default for opening customer LOGO display

Common communication commands

<T addr sn cmd data1 data2 data3 data4 cs >

cs = addr+sn+cmd+data1+data2+data3+data4

<T0001701002020085> //switch input2->output2

<T0001701003020086> //switch input2->output3

<T0001701004030088> //switch input3->output4

<T000170100e0a0099> //switch input10->output14

<T000170100e00008F> //close output way14

<T00017010ff040084> //switch input4->all outputs

<T0001701106000088> //Read input channel that output way6 correspond to

<F00017011060d0095> //Back input13->output6

Note

Compatible with Extron matrix (MAV 1616 AV) agreement.

C. Contact Information

Warranty:

All video products are designed and tested to the highest quality standard and backed by full 3 year parts and labor warranty. Warranties are effective upon delivery date to customer and are non-transferable. RGBlink warranties are only valid to the original purchase/owner. Warranty related repairs include parts and labor, but do not include faults resulting from user negligence, special modification, lighting strikes, abuse(drop/crush), and/or other unusual damages.

The customer shall pay shipping charges when unit is returned for repair.

Headquarter: S603~604 Weiye Building Torch Hi-Tech Industrial Development Zone Xiamen, Fujian Province, P.R.C.

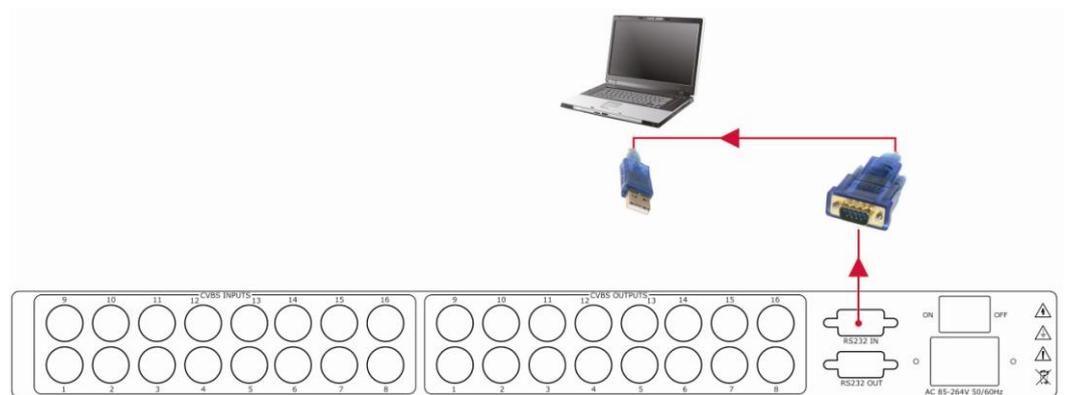
- **Tel:** +86-592-5771197
- **Fax:** +86-592-5771202
- **Customer Hotline:** 4008-592-315
- **Websites:**
 - ~ <http://www.rgblink.com>
 - ~ <http://www.rgblink.cn>
- **E-mail:** support@rgblink.com

D. Software Upgrade

Upgrade

1. Use RS232 to USB serial line, connect USB interface to the computer and connect RS232 interface end to RS232 interface IN port, as shown:

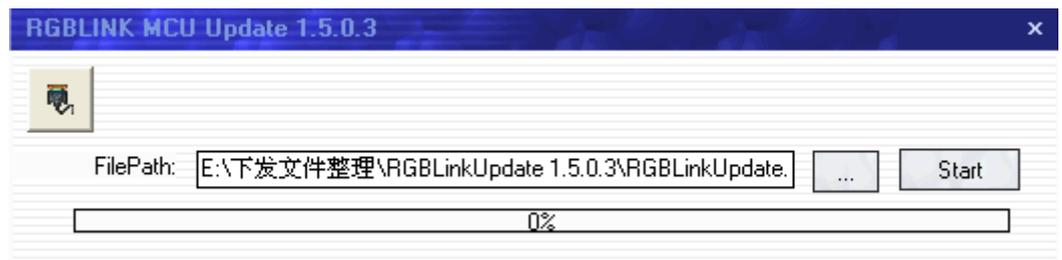
RS232 to USB serial line:



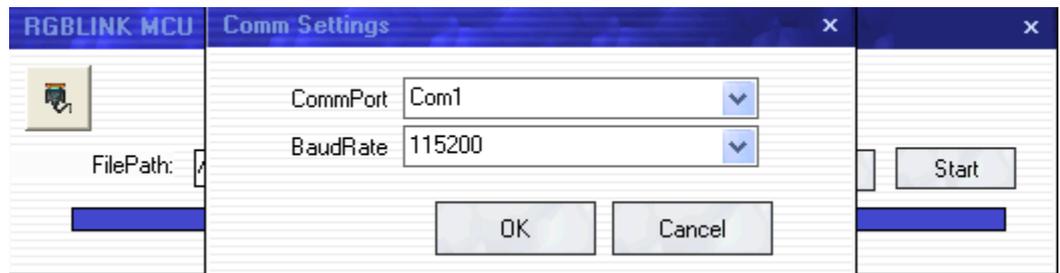
2. Power on.



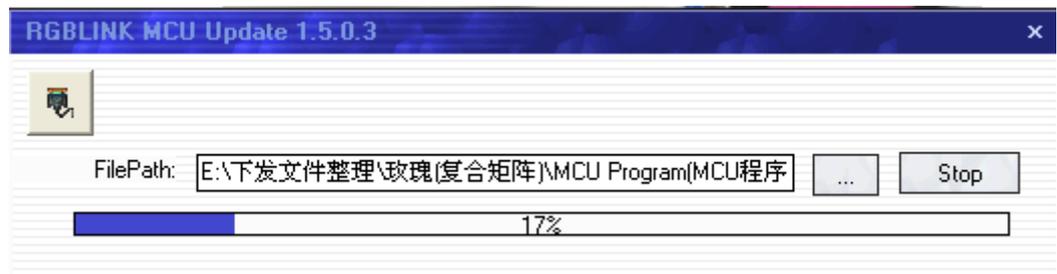
3. Open software , the interface as shown:



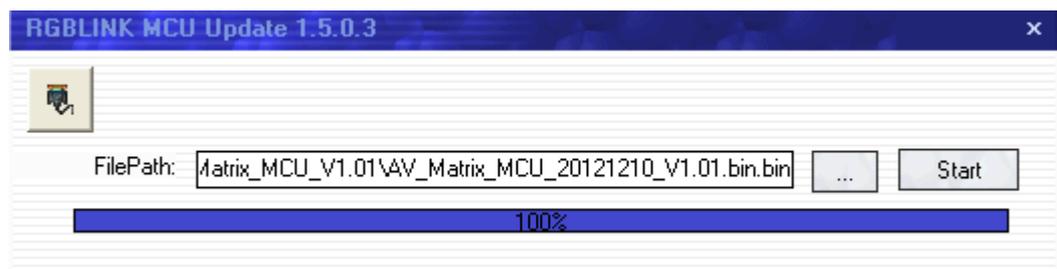
Click  "CommPort" to set serial port, choose the corresponding serial port, click "OK" to confirm, as below:



4. Choose the needed upgrade program file path and click "Start" to begin to upgrade, at the same time, upgrade process shows the program loading progress, as shown:



5. When loading progress is 100%, it means loading successfully, as shown below. Otherwise, it needs to be reloaded.



6. Restart the device and check whether it operates normally.