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RGBlink MSP200PRO LED
Controller Store

RGBlink MSP200PRO LED Controller Store User Manual

Contents

RGBlink®

RGBlink MSP200PRO LED Controller Store

Specifications

- Product: MSP 200PRO
- Article No: RGB-RD-UM-200PRO E002
- Revision No: V1.2

Product Information

The MSP 200PRO is a professional-grade product designed to
provide high-quality performance for various applications. It comes with advanced features and functionalities to
meet the user's requirements.

Product Usage Instructions

Operators Safety Summary
The MSP 200PRO is equipped with safety features to ensure safe operation. Please follow these guidelines

- Do not remove covers or panels to prevent exposure to dangerous voltages.
- Ensure the power source does not exceed 230 volts rms between supply conductors.
- Ground the product using the provided grounding conductor for safe operation.
- Use only the specified power cord and connector in good condition.
- Replace fuses with identical type, voltage rating, and current rating characteristics.
- Avoid operating the product in explosive atmospheres.

Installation Safety Summary
When installing the MSP 200PRO, adhere to the following safety precautions

- Ensure proper grounding to avoid electrical shock.
- Use appropriate power cords and connectors specified for the product.
- Consult qualified service personnel for cord, connector, and fuse replacements.

FAQ

Q: What should I do if I encounter issues with my MSP 200PRO?

A: If you experience any problems with the product, please contact our support team for assistance. Refer to the user manual for troubleshooting tips or reach out to us directly for further guidance.

Thank you for choosing our product!

This User Manual is designed to show you how to use this product quickly and make use of all the features. Please read all directions and instructions carefully before using this product.

Declarations

FCC/Warranty

Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area may cause harmful interference, in which case the user will be responsible for correcting any interference.

Guarantee and Compensation

RGBlink provides a guarantee relating to perfect manufacturing as part of the legally stipulated terms of guarantee. On receipt, the purchaser must immediately inspect all delivered goods for damage incurred during transport, as well as for material and manufacturing faults. RGBlink must be informed immediately in writing of any complains.

The period of guarantee begins on the date of transfer of risks, in the case of special systems and software on the date of commissioning, at latest 30 days after the transfer of risks. In the event of justified notice of compliant, RGBlink can repair the fault or provide a replacement at its own discretion within an appropriate period. If this measure proves to be impossible or unsuccessful, the purchaser can demand a reduction in the purchase price or cancellation of the contract. All other claims, in particular those relating to compensation for direct or indirect damage, and also damage attributed to the operation of software as well as to other service provided by RGBlink, being a component of the system or independent service, will be deemed invalid provided the damage is not proven to be attributed to the absence of properties guaranteed in writing or due to the intent or gross negligence or part of RGBlink.

If the purchaser or a third party carries out modifications or repairs on goods delivered by RGBlink, or if the goods are handled incorrectly, in particular if the systems are commissioned operated incorrectly or if, after the transfer of risks, the goods are subject to influences not agreed upon in the contract, all guarantee claims of the purchaser will be rendered invalid. Not included in the guarantee coverage are system failures which are attributed to programs or special electronic circuitry provided by the purchaser, e.g. interfaces. Normal wear as well as normal maintenance are not subject to the guarantee provided by RGBlink either.

The environmental conditions as well as the servicing and maintenance regulations specified in this manual must be complied with by the customer.

Operators Safety 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.

- **Power Source**

  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.

- **Grounding the Product**

  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 Atmospheres**

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

Installation Safety Summary

Safety Precautions

- For all MSP 200PRO 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 via 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 MSP 200PRO 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 MSP 200PRO should be clean, properly lit, free from static, and have adequate power, ventilation, and space for all components.

Chapter 1 Your Product

In the Box

AC Power Cord

QC Declaration

Product Overview

- Format and Test Pattern Generation are just two of the many features of MSP 200PRO. MSP 200PRO allows on board preview of an HDMI (or optionally SDI) source along with format inspection. There is wave form monitoring and video monitoring capabilities too. Popular test patterns can be easy selected with motion or without, and time code can be generated and displayed allowing inspection frame delay.
- Outputs as standard are (up to) 3G-SDI, CVBS and DVI, with DVI supporting both HDMI and VGA signals also. Genlock is integrated too.
- A compact touch friendly device MSP 200PRO is the essential device for the AV professional.

Interface Instruction

Output Connectors

1	**BNC – 3G-SDI** Standard 3G-SDI signals can input.
2	**BNC – CVBS** Standard video signal from players, cameras can input.
3.4	**BNC – Genlock** Connect to the device with Genlock input.
5	**Audio** Connect to the speakers or audio power amplifier system.
6	**DVI-I – DVI** • Connect to the monitor or LED display which has DVI interface. (This connector does not support hotplug). • DVI +VGA, VGA output connector can be connected to monitor or projector which has VGA interface. • HDMI connector (via DVI to HDMI cable), connect to the display device, video processor or matrix with HDMI input.

Input Connectors

| 7	**HDMI-A – HDMI** Standard HDMI signals from computer can input.
8	**USB-A – USB** Access the USB device or mobile hard disk with USB storage function. Support general image and video formats.
9	**BNC – Genlock** Standard Genlock signals can input.

Control Connectors

10	**USB-B – USB** For product upgrades.
11	**Reset** Push Reset button to modify the settings if the touch screen works improperly due to incorrect screen calibration.

Power Connection

12	**Power Input** Standard 12V/3A power supply.
13	**Power Switch** Illuminated power switch.

Dimension
Following is the dimension of MSP 200PRO for your reference:
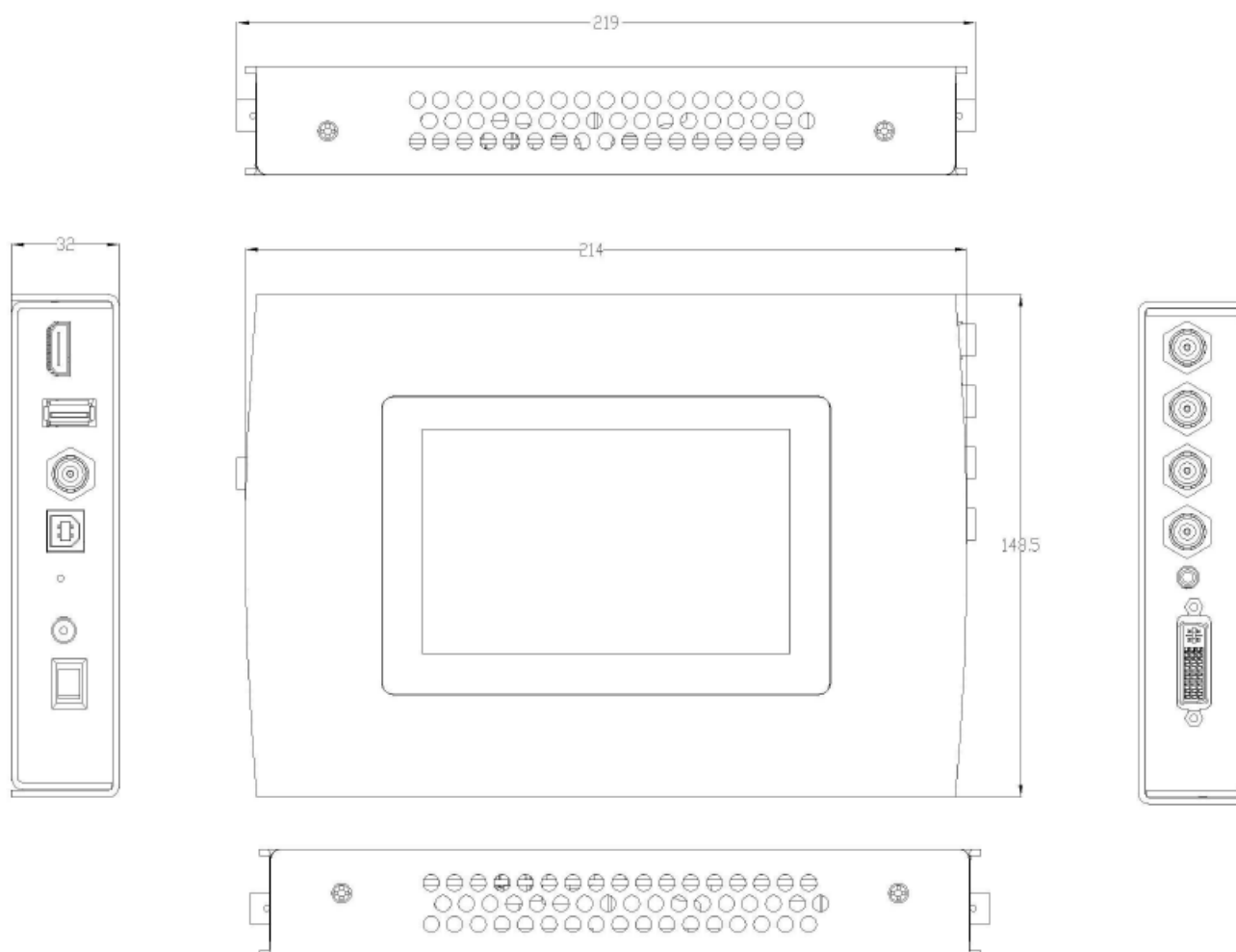
Chapter 2 Installing Your Product

Plugging in Signals
Connect signals to the product (ensure all devices are powered off first). Tighten connector screws/locks where provided.

Plugging in Main Power
Connect the power cord to device and plug into wall socket. Turn on power at wall socket.

Turning on Your Product
Turn the power switch on the rear of the product to the ON position.
The LCD touch display will show the start-up interface and show the default menu after completing initialization as below. On delivery, the output format is defaulted to SMPTE 1080P@60.
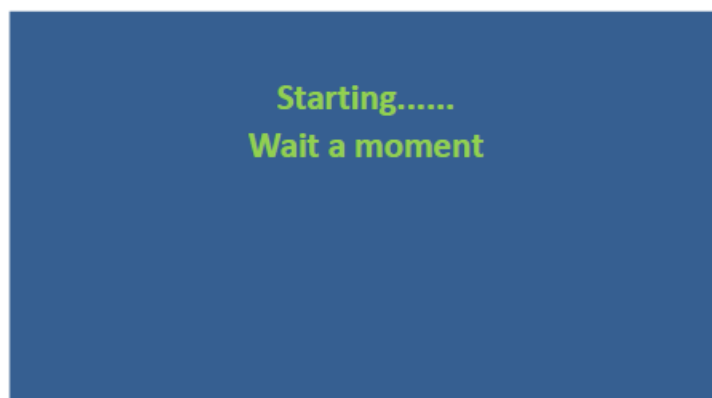
Chapter 3 Using Your Product

Understanding the Display

Turn the power switch to the ON position, the LCD touch display will show the start-up interface and show the default menu after completing initialization as below:
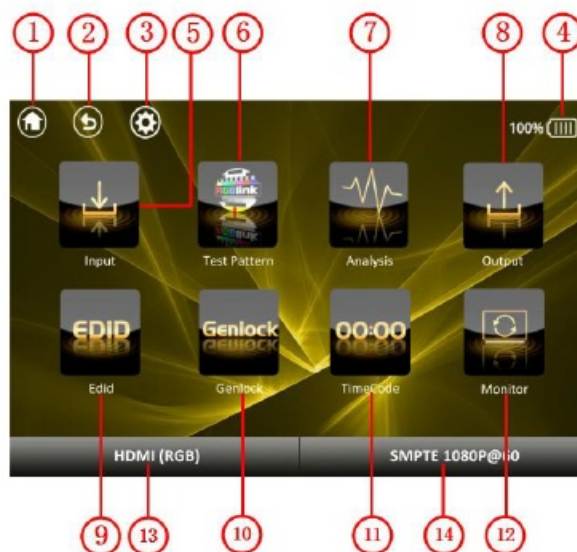
Introduce for the above information

1	"Home" icon, touch the icon in any operation interface, it will return to the home interface.
2	"Return" icon, touch the icon, it will return to the previous level menu.
3	"Setting" icon, touch the icon, user can view the system information and upgrade the software.
4	Battery icon, display the current capacity of the battery.
5	Input icon.
6	Test pattern icon.
7	Analysis icon.
8	Output icon.
9	EDID icon.
10	Genlock icon.
11	Timer code icon.
12	Monitor icon.
13	- Display the current input module that fitted. Display "NO MODEL" if there is no module. - Display "HDMI/USB" if the HDMI+USB module is fitted. - Display "SDI" if the SDI module is fitted.

	Display "HDMI(RGB)" if the HDMI(RGB) module is fitted.
14	Display the current output resolution (the output format is defaulted to SMPTE 1080P@60).

Understanding the Menus
Touch any menu icon in default menu, the LCD touch display will enter to the next level menus as follows:

Input

Touch the input icon ![input icon], the LCD touch display will show the menus as follows

Input Source	Touch the icon to select the input source.
Audio	Touch the icon, it will enter to the audio test menu. Select any music, and connect the headphone to the audio output when testing.

Test Pattern

Touch the test pattern icon , the LCD touch display will show the menus as follows:

	Including 3 kinds of test patterns, as shown below:
Color Bars	: COL_BAR_100%
	: COL_BAR_75%
	: SMPTE COL BAR
	Motion: Select "ON" or "OFF" to live or freeze the image in the test pattern mode.
Grey Scale	Including 10 kinds of test patterns, as shown below:
	: H_RAMP
	: V_RAMP
	: GRAY_50%
	: GRAY_STEP_1
	: GRAY_STEP_2
	: WHITE

		: BLACK
		: RED
		: GREEN
		: BLUE
	Motion: Select "ON" or "OFF" to live or freeze the image in the test pattern mode.	
Grids	Including 3 kinds of test patterns, as shown below:	
	: GRID_16_16	
	: GRID_32_32	
	: BURST	
	Motion: Select "ON" or "OFF" to live or freeze the image in the test pattern mode.	
Colours	Custom the test pattern.	

Analysis

Touch the analysis icon , the LCD touch display will show the menus as follows:

Histogram	Touch the icon, it will enter to the histogram video analysis diagram.
Waveform	Touch the icon, it will enter to the waveform video analysis diagram.
Vector	Touch the icon, it will enter to the vector video analysis diagram.
Audio Signal Monitor	Touch the icon, it will enter to the audio monitor video analysis diagram. **Note:** Touch anywhere on the upper part of the screen in the video analysis interface, it will appear a "Return" icon on the top left corner of the screen, click the icon will return to the last level menu.

Output

Touch the output icon , the LCD touch display will show the menus as follows:

SMPTE	Touch the "SMPTE" button and select the output resolutions, including: 1080P@60, 1080P@59.94, 1080P@50, 1080P@30, 1080P@29.97, 1080P@25, 1080P@24, 1080P@23.98, 1080i@60, 1080i@50, 1080i@59.94, 720P@60, 720P@50, 720P@59.94, 576i@50, 480i@60
	Touch the "VESA" button and select the output resolutions, including:
	640×480@60, 640×480@75, 640×480@85, 800×600@60, 800×600@75,
VESA	800×600@85, 1024×768@60, 1024×768@75, 1024×768@85, 1280×800@60, 1280×1024@60, 1280×1024@75, 1280×1024@85, 1360×768@60, 1366×768@60,
	1400×1050@60, 1440×900@60, 1600×1200@60, 1680×1050@60, 1920×1080@60,
	1920×1200@60, 2048×1152@60, 2560×812@60, 2560×816@60

EDID

Touch the EDID icon , the LCD touch display will show the menus as follows

Write EDID	User can write EDID by selecting the EDID in the left EDID list, or custom the EDID by clicking "Customer".
Read EDID	Read EDID. Connect the DVI cable to the external display before reading EDID, otherwise read EDID will fail. Select "Copy to output", the EDID that read can be copied to the output. Select "Delete item" to delete the EDID that read.

Genlock

Touch the genlock icon , the LCD touch display will show the menus as follows:

Genlock Enable or disable the Genlock function. Select "ON" can read the Genlock Y input and test the "GENLOCK Y", "GENLOCK HS" and "GENLOCK VS".

Time Code

Touch the Time Code icon , the LCD touch display will show the menus as follows

Timer Code Start, pause and reset the timer code.

Monitor

Touch the monitor icon , the monitor will display the video from USB disk. Touch anywhere on the screen, it will appear a "Return" icon on the top right corner of the screen, click the icon will return to the previous level menu.

Settings

Touch the settings icon , the LCD touch display will show the menus as follows:

System Info	Touch the icon, it will show the serial number, MCU version, FPGA version and cell voltage.
Upgrade	- Touch the icon, it will pop up 3 buttons: "Update FPGA", "Update VIDEO" and "Update MCU". - Touch "Update FPGA" to upgrade the external FLASH of FPGA. It will pop up the progress bar twice during upgrade, the first time is erasing, and the second time is programming. Restart the device when the progress bar up to 100% for the second time. **Note:** Don't touch anywhere on the screen during upgrade. - Touch "Update VIDEO" to upgrade the HDMI+USB module, the operation is same with "Update FPGA". - Touch "Update MCU", MCU will be started. Then it will pop up the "UPDATE" dialog box if the SD card initialization is successful. Touch "UPDATE" again to upgrade the MCU, the device will restart when the upgrade is over. If the SD card initialization is unsuccessful, it will prompt "SD CARD ERROR", user need to power off and restart the device, then touch "UPDATE". **Note:** Don't touch anywhere on the screen during upgrade.

Chapter 4 Ordering Codes

1. **Product**

   651-0200-01-0 MSP 200PRO
2. **Options**

   490-5353-01-0 SDI Input Module for MSP 200PRO

Chapter 5 Support

- **www.rgblink.com**
- **info@rgblink.com**
- **mrgblink.com/contact-us**

Global Support

- **support@rgblink.com**
- **mrgblink.com/support-me**

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Chapter 6 Appendix

Specification

HDMI Input	
Number of Inputs	1
Connector	Standard HDMI-A socket
Supported Resolution	VESA: 3840×2160×24 | 3840×2160×25 | 3840×2160×30 | 4096×2160×24 SMPTE: 625/25/50 PAL | 525/29.97/59.94 NTSC | 720p50/59.94/60 | 1080i50/59.94/60 | 1080P50/59.94/60 | 1080psf
Signal Level	TMDS pwl, single pixel input,165MHz bandwidth
Format Standard	HDMI 1.3
USB Input	
Number of Inputs	1
Connector	Standard USB-A socket
Supported Standards	Support general Image and video formats
Genlock Input	
Number of Inputs	1
Connector	Standard BNC Socket
DVI Output	
Number of Outputs	1
Connector	Standard DVI-I Socket
Signal Level	TMDS pw, 165MHz bandwidth
Supported Resolution	SMPTE: 487i@60 | 483P@60 | 576i@50 | 576P@50 | 720p@23.98/24/25/29.97/30/50/59.94/60 | 1080p@23.98/24/25/29.97/30/50/59.94/60 VESA: |640×480@60/75/85 |800×600@60/75/85 | 1024×768@60/75/85 | 1028×1024@60/75/85 | 1028×800@60 | 1360×768@60 | 1366×768@60 | 1400×1050@60 | 1440×900@60 | 1600×1200@60 | 1680×1050@60 | 1920×1200@60 | 2048×1152@60 | 2560×812@60 | 2560×816@60
SDI Output	
Number of Outputs	1
Connector	Standard BNC Socket
Signal level	800mV±10%
Supported Standard	SMPTE 425M – 3G Level A and Level B Formats
Supported Resolution	SMPTE 425M (3G Level A) 4:2:2: 1920×1080/60 (1:1), 1920×1080/50 (1:1). SMPTE 425M (3G Level B DS1 and DS2) 4:2:2: 1920×1080/60 (2:1) I

	1920×1080/50 (2:1) SMPTE 274M (HD): 1920×1080I/60 (2:1) or 1920×1080/30 (PsF) I 1920×1080I/50 (2:1) or 1920×1080/25 (PsF) I 1920×1080/30 (1:1) I 1920×1080/25 (1:1) I 1920×1080/24 (1:1) I 1920×1080/24 (PsF) SMPTE 125M (SD): 1440×487/60 (2:1) SMPTE ITU-R BT.656 (SD): 1440×576/50 (2:1) Or dual link progressive, 625-line generic.
Equalization	Belden 1694A 100m HD 1.485G, 300m SD 270Mbps
Genlock Output	
Number of Outputs	1
Connector	Standard BNC Socket
Audio Output	
Number of Outputs	1
Connector	Card faucet , Standard 1/4 Socket
Audio standard	48Kbps 24bit
Extras	
Communication	USB
Power Supply	Standard 12V/3A, or lithium ion battery 3.7V
Working Environment	0°C~45°C
Stored Environment	10% to 90%
Product Warranty	3 years parts and labor warranty

Software Upgrade

Preparatory Work

1. Upgrade instruction
2. Upgrade file
3. 1 USB cable, 1 computer and 1 MSP 200PRO

Step 1: Copy the upgrade files to SD card
Connect one end of the USB cable to the "USB Control" port of MSP200PRO, and the other end to the computer. Power on MSP 200PRO, then the computer will search a removable disk, as shown in the figure below:

There are 4 folders in the disk root directory, "GUI", "MUSIC", "SYSTEM" and "UPDATE". Copy the files "FPGA.bin" and "UPDATE.bin" to the "UPDATE" folder in the removable disk. If these files are already, replace the original files. Then copy the file "Logo.jpg" to the "GUI" folder in the removable disk. Also replace the file if it is already exist.

Step 2: Clear the upgrade mark
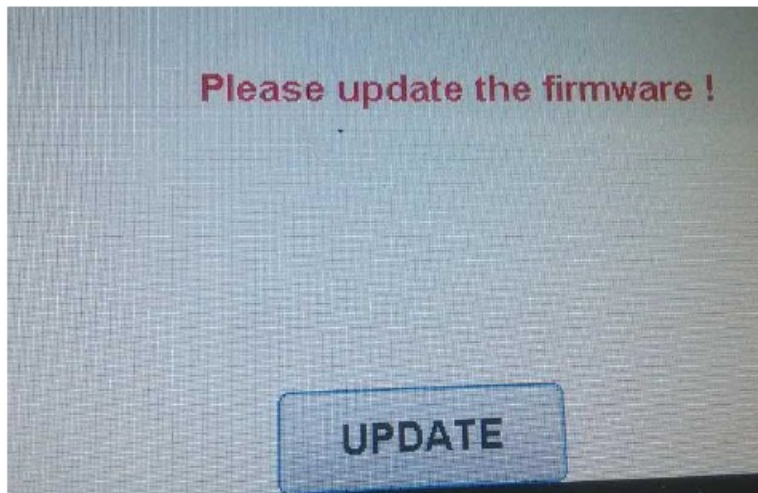
Pull out the USB cable after copying the files.

Touch the settings icon ![gear icon], and enter to the next level menus. Then touch the upgrade icon ![upgrade icon], and enter to the upgrade interface. Touch the "Update MCU" button, the device will restart and clear the upgrade mark. No operations are permitted during restarting.
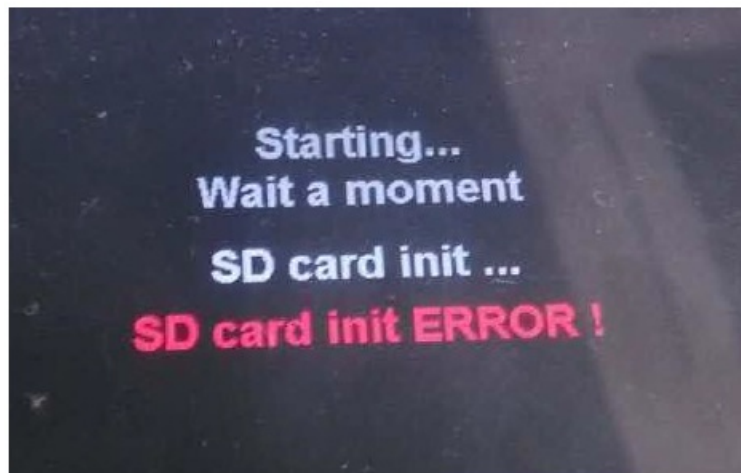
Step 3: Upgrade MCU
After upgrading the BOOT program (Step 3), power on the device, and it will prompt as follows

Restart the device if the LCD touch screen displays as follows:

Touch the "UPDATE" button after restarting. The device begins to upgrade. Don't touch the screen or power off during upgrading. It will restart when upgrade is finished. The upgrade progress is shown as in the figure below. It will pop up the progress bar twice during upgrade, the first time is erasing, and the second time is programming.
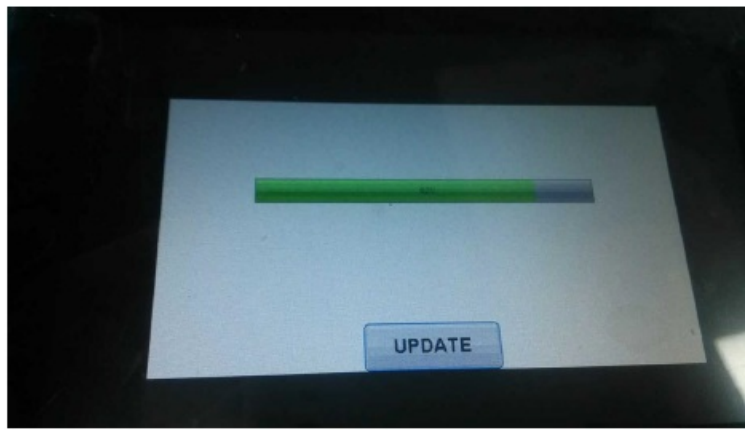
Step 4: Upgrade FPGA
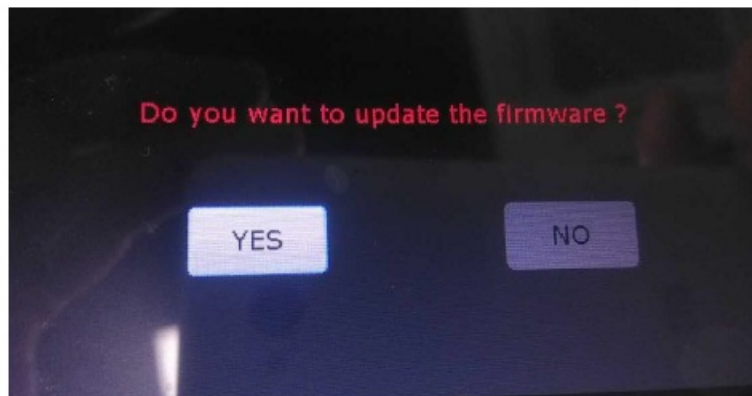**Special Note**: Make sure the battery is enough (more than 75%) during upgrading the FPGA program. It is recommended to use the external power supply!!

Touch the settings icon , and enter to the next level menus. Then touch the upgrade icon , and enter to the upgrade interface. Touch the "Update FPGA" button, it will pop up the dialog box as follows

Touch the "YES" button to upgrade FPGA, as shown in the figure below
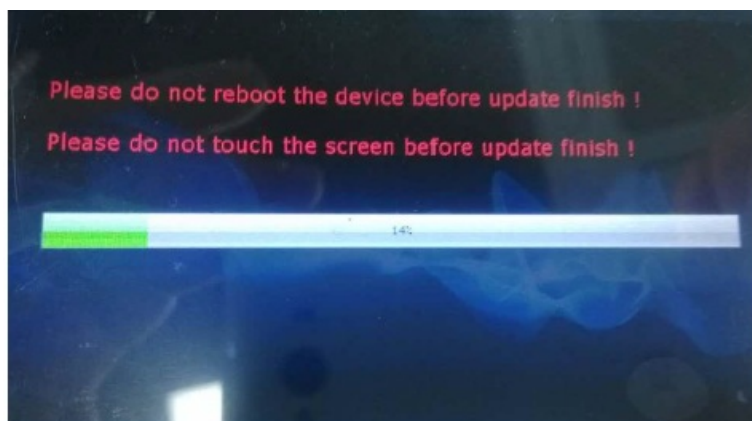
The upgrade progress will be longer as the FPGA firmware is large. Don't touch the screen or power off before finishing upgrade. It will prompt as follows after upgrading
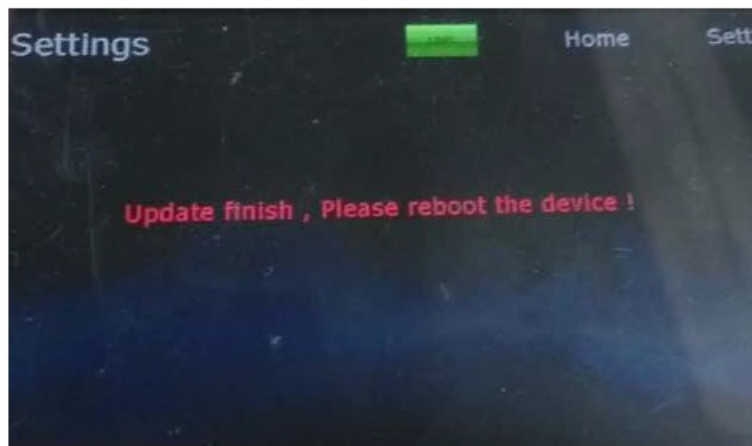
Restart the device when upgrade FPGA is finished.
Note: Don't touch the screen or power off before finishing upgrade!!

Installing the Battery
Besides the standard power supply, MSP 200PRO built in 2 lithium-ion batteries, the specific installation steps are as follows

1. Unscrew the 7 screws on the back panel of MSP 200PRO with a screwdriver, and remove the holder, as shown in the figure below

2. Prepare 2 lithium ion batteries. Pay attention to the positive and negative terminals of the batteries, this is the main points in installing the batteries. As shown in the figure below:

Negative Pole | Positive Pole

3. Also there are prompt in the battery compartment:

Negative Pole | Positive Pole
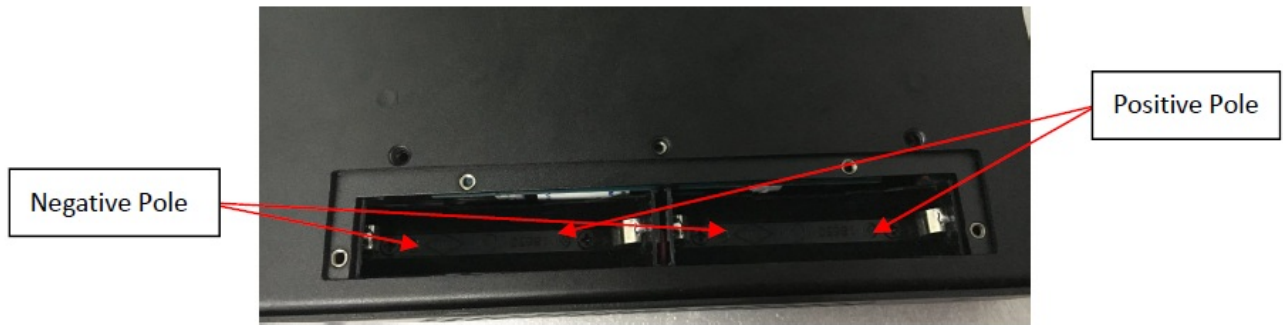
4. Install the 2 lithium ion batteries to the battery compartment one by one. Install the negative pole first, if install the positive pole first, maybe the battery can not be installed, or the battery compartment may be damaged. As shown in the figure below:

5. Install the holder, and lock the 7 screws, installing batteries is finished. As shown in the figure below

Terms & 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-Concelman. 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 subcarrier 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 include 5000°K, 6500°K, and 9000°K.

- **"Contrast ratio":** The radio of the high light output level divided by the low light output level. In theory, the contrast radio 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 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 exists including progressive 1280×720 and interlaced 1920×1080 resolution. Up to 32 audio signals are carried in the ancillary data.

- **"JPEG"** (Joint photographic Expects Group): Commonly used method of lossy 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.

- "Operator": Refers to the person who uses the system.

- **"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-filed (25 fps) composite color transmission 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. 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.
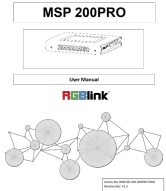
- **"Saturation":** Chroma, chroma gain. The intensity of the color, or the extent to which a given color in any image is free from white. The less white in a color, the truer the color or the greater its saturation. On a display device, the color control adjusts the saturation. Not to be confused with 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 avoid 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 standards for baseband 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 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.

Revision History

The table below lists the changes to the Video Processor User Manual.

Format	Time	ECO#	Description	Principal
V1.0	2016-11-22	0000#	Release	Vira
V1.1	2017-03-15	0001#	1. Update the panel. 2. Update the menus and menu interface. 3. Add the "Ordering Codes".	Vira
V1.2	2023-12-18	0002#	Update In the Box	Aster

Documents / Resources

MSP 200PRO

User Manual

RGBlink

Article No: RGB-RD-UM-200PRO E002
Revision No: V1.2

RGBlink MSP200PRO LED Controller Store [pdf] User Manual
RGB-RD-UM-200PRO E002, MSP200PRO LED Controller Store, MSP200PRO, LED Controller Store, Controller Store, Store

References

- 🌐 **VESA - Interface Standards for The Display Industry**
- **User Manual**