

► MFP62
User Manual

Thank you for purchasing this product.

For optimum performance and safety, please read these instructions carefully before connecting, operating or adjusting this product. Please keep this manual for future reference.

**Surge protection device recommended**

This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, lightning strikes, etc. Use of surge protection systems is highly recommended in order to protect and extend the life of your equipment.

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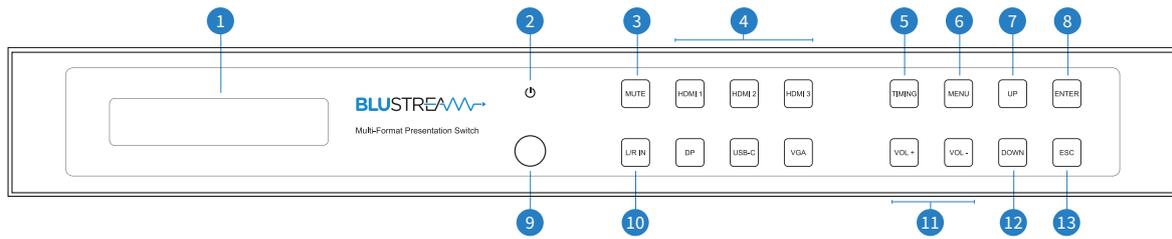
Introduction

Our MFP62 is an advanced 4K multi format presentation switch featuring 3 x HDMI, 1 x USB-C, 1 x DisplayPort™ and 1 x VGA input to dual HDMI outputs. The MFP62 provides enhanced features including video scaling on outputs, MIC input with phantom power and audio mixing. The MFP62 also features web GUI for control and configuration, analogue audio embedding, audio de-embedding and control via front panel, IR, RS-232 and TCP/IP. The MFP62 is an ideal product for your boardroom, classroom or huddle-space application.

FEATURES:

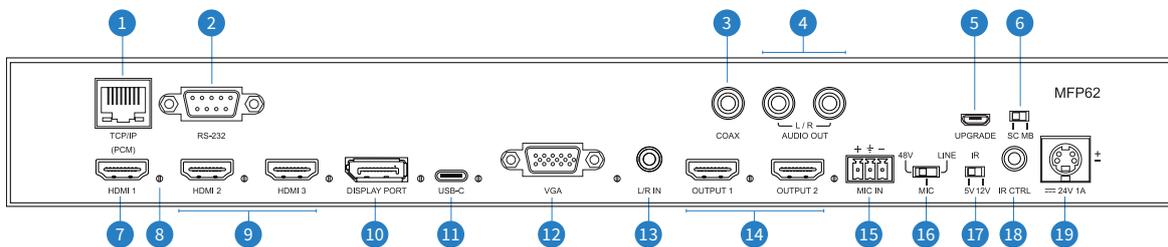
- Features 3 x HDMI, 1 x USB-C, 1 x DisplayPort™ & 1 x VGA input which can be routed to dual HDMI outputs
- Supports HDMI 2.0 18Gbps specification including HDR
- Supports resolutions up to 4K UHD 60Hz 4:4:4
- Supports all known HDMI audio formats including Dolby TrueHD, Atmos and DTS-HD Master Audio transmission
- Dual HDMI outputs with simultaneous video scaling
- Supports USB Type C up to 4K UHD 60Hz 4:4:4, DP1.2 & Alt mode
- Supports DisplayPort™ up to 4K UHD 60Hz 4:4:4, DP1.2
- Audio breakout to analogue L/R audio and Coaxial (S/PDIF) digital outputs concurrently
- Features audio mixer with independent level adjustment
- Analogue audio embedding
- MIC input supports line level, 48V Phantom power or 1ch balanced / un-balanced audio
- Web interface module for control and configuration of switch
- Control via front panel, IR, RS-232 and TCP/IP
- HDCP 2.2 compliant with advanced EDID management

Panel Description - Front



- 1 LCD display – Shows the status of input/output selection, EDID etc
- 2 Power button – Press to power on/off the Switcher. Illuminates blue when powered on
- 3 Mutes all audio output
- 4 Input selection - To select the input signal between HDMI 1 to 3, DP, USB-C and VGA
- 5 Timing selection - To select scaler output video resolution
- 6 Menu button – Press to enter EDID, Network and MIC setup menu
- 7 Up selection button – Press to change segment’s value
- 8 Enter button – Press to select current menu item.
- 9 IR receiver window
- 10 L/R In button - Press to select analogue audio input to be embedded onto all video signals
- 11 Vol +/- button - Press to adjust the volume of the audio output for 2ch PCM signals only
- 12 Down selection button – Press to change segment’s value
- 13 ESC button – Press to escape the current setup menu

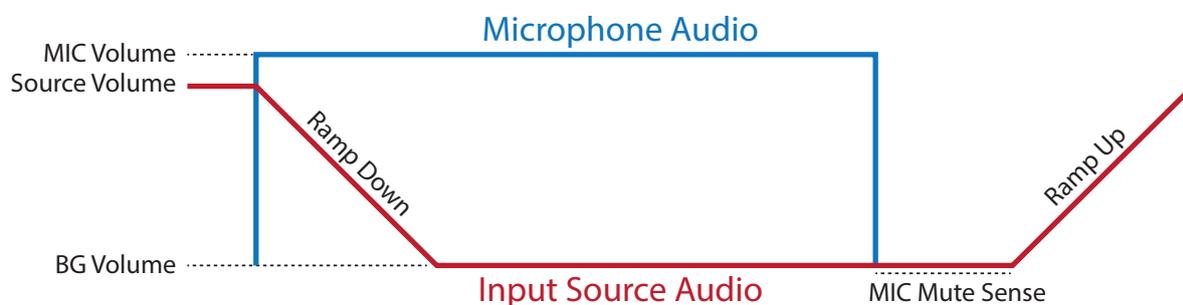
Panel Description - Rear



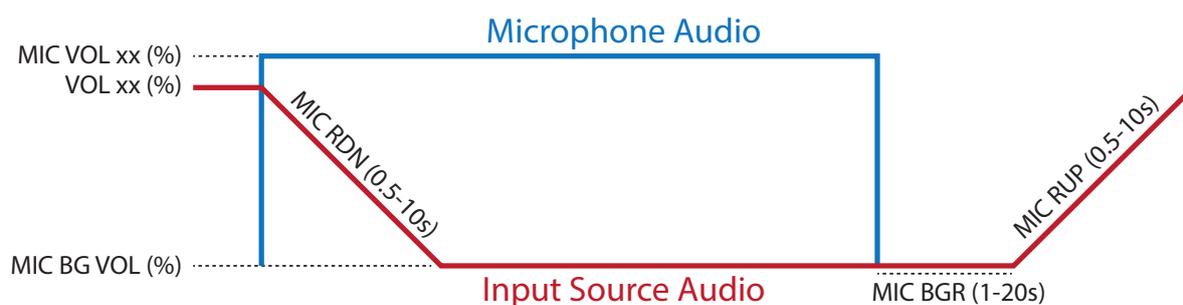
- 1 TCP/IP (RJ45) – Connect to LAN for TCP/IP control of Switcher and Web GUI
- 2 RS-232 port – For control of the Switcher from PC or third party control processor
- 3 Coaxial digital audio output – Extract audio from the selected input signal
- 4 L/R analogue audio outputs (RCA) – Extracted audio from the selected input signal. Note: Input signal must be PCM 2ch audio
- 5 Upgrade port (Micro USB) - For firmware upgrade
- 6 SC/MB switch - For firmware upgrade of scaler or main board
- 7 HDMI input 1 - Connect to HDMI source. Supports up to 4K 60Hz 4:4:4 video and 2ch PCM audio only
- 8 Status LED - Illuminates when an input or output has an active connection to a source or display
- 9 HDMI input 2 to 3 - Connect to HDMI source. Supports up to 4K 60Hz 4:4:4 video and multi channel audio
- 10 DisplayPort™ input - Connect to DisplayPort source. Supports up to 4K 60Hz 4:4:4 and DP1.2
- 11 USB-C input - Connect to USB-C source. Note: this port does not support charging via USB. Supports up to 4K 60Hz 4:4:4, DP1.2 and Alt mode
- 12 VGA input - Connect to VGA source. Supports up to 1920x1200 (including 1080p)
- 13 L/R In - 3.5mm Analogue audio input for embedding audio onto HDMI outputs
- 14 HDMI outputs - Connects to HDMI display. Both outputs display the same signal concurrently
- 15 MIC IN - Supports balanced and unbalanced microphones including 48V phantom power
- 16 MIC input selection - Select between 48V phantom power, line level and mic level input sensitivity
- 17 IR selection - Select between 5V or 12V IR on the IR CTRL connection. See full manual for pin out
- 18 IR CTRL receiver input – 3.5mm stereo jack for connection of an IR receiver or control processor for remote IR control of the switcher
- 19 Power port – Use included 24V/1A DC adaptor to power the switcher

Microphone Input & Audio Mixing

The MFP62 features a microphone input that can support 48V phantom power, balanced and unbalanced microphones, as well as line level audio input. It also features auto audio ducking where by the input source’s audio decreases in volume and the microphone audio is mixed over the top. This feature is enabled by default and can be customised via the MFP62’s web GUI or RS-232. The illustration below outlines how the microphone audio mixes over the input source’s audio.



All the microphone mixing features can be adjusted via RS-232. The RS-232 commands associated with each item are as follows:



When using the microphone mixing functionality, it is recommended to only use 2ch audio sources, or set the EDID of the product to a 2ch EDID. While the MFP62 does support multichannel audio, mixing the microphone input over the multichannel signal is not possible hence the source audio drops out when the microphone audio is triggered. To enable multichannel audio support, you must choose a multichannel EDID via the Web GUI of the product.

EDID Control

EDID (Extended Display Identification Data) is a data structure that is used between a display and a source. This data is used by the source to find out what audio and video resolutions are supported by the display. By pre-determining the video resolution and audio format of the source and display device you can reduce the time needed for EDID hand shaking.

Configuration of switcher’s EDID settings can be achieved using the Menu button on the front panel of the MFP62, RS-232 or via its Web GUI. The EDID options available are:

Selectable via Front Panel / RS-232 / Web GUI

- HDMI 1080p@60Hz, Audio 2ch PCM
- HDMI 1080i@60Hz, Audio 2ch PCM
- HDMI 1080p@60Hz/3D, Audio 2ch PCM
- HDMI 4K@30Hz 4:4:4, Audio 2ch PCM
- HDMI 4K@60Hz 4:2:0, Audio 2ch PCM
- HDMI 4K@60Hz 4:4:4, Audio 2ch PCM
- DVI 1280x1024@60Hz, Audio None
- DVI 1920x1080@60Hz, Audio None
- DVI 1920x1200@60Hz, Audio None
- HDMI 1920x1200@60Hz, Audio 2ch PCM

Selectable via RS-232 / Web GUI only

- HDMI 1080p@60Hz, Audio 5.1ch PCM
- HDMI 1080p@60Hz, Audio 7.1ch PCM
- HDMI 1080i@60Hz, Audio 5.1ch PCM
- HDMI 1080i@60Hz, Audio 7.1ch PCM
- HDMI 1080p@60Hz/3D, Audio 5.1ch PCM
- HDMI 1080p@60Hz/3D, Audio 7.1ch PCM
- HDMI 4K@30Hz 4:4:4, Audio 5.1ch PCM
- HDMI 4K@30Hz 4:4:4, Audio 7.1ch PCM
- HDMI 4K@60Hz 4:2:0, Audio 5.1ch PCM
- HDMI 4K@60Hz 4:2:0, Audio 7.1ch PCM
- HDMI 4K@60Hz 4:4:4, Audio 5.1ch PCM
- HDMI 4K@60Hz 4:4:4, Audio 7.1ch PCM

Scaler Control

The MFP62 supports scaling of the output video signal. This can be selected by pressing the Timing button on the front panel of the matrix, or via the Web GUI or RS-232. Note: both HDMI outputs will output at the same resolution. Scaler options are:

1024x768@60Hz	1680x1050@60Hz	1080p@50Hz	4K2K@50Hz	DCI 4K2K@50Hz
1280x800@60Hz	1920x1200@60Hz	1080p@60Hz	4K2K@60Hz	DCI 4K2K@60Hz
1360x768@60Hz	720p@50Hz	4K2K@25Hz	DCI 4K2K@25Hz	Auto
1440x900@60Hz	720p@60Hz	4K2K@30Hz	DCI 4K2K@30Hz	

Auto mode will examine the EDID of the display connected to HDMI Out 1 first, and choose the best output resolution based on the EDID information.

Scaler Frequency

The output scaler can be forced to a fixed frequency as specified above, or when the scaler is in auto mode, the frequency mode can also be set to auto where by the input frequency will dictate the output frequency in conjunction with the EDID from the display, to give the best result possible. The chart below shows what the output frequency should be based on the EDID of the display.

Display / EDID Resolution	Input Frequency				
	60Hz	50Hz	30Hz	25Hz	24Hz
4K @ 25/30Hz	30Hz	25Hz	30Hz	25Hz	24Hz
4K/DCI 4K @ 50/60Hz	60Hz	50Hz	30Hz	25Hz	24Hz
1080p/720p @ 50/60Hz	60Hz	50Hz	60Hz	50Hz	50Hz
PC Resolutions eg: 1024x768, 1680x1050	60Hz	60Hz	60Hz	60Hz	60Hz

Infrared (IR) Distribution

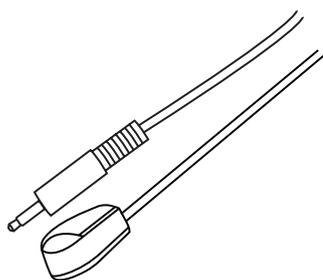
The MFP62 features IR input for control and switching.

IMPORTANT: Blustream Infrared products are all 5V and NOT compatible with alternative manufacturers Infrared solutions. When using third party 12V IR control solutions please use Blustream IRCAB cable for IR conversion.

Each Blustream product is supplied with all necessary IR hardware required and includes:

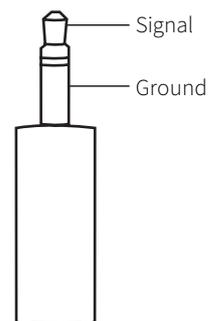
IR Emitter - IRE1 & IRE2

Blustream 5V IR Emitter designed for discrete IR control of hardware



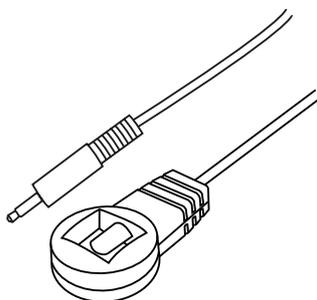
Infrared 3.5mm Pin-Out

IR Emitter - Mono 3.5mm

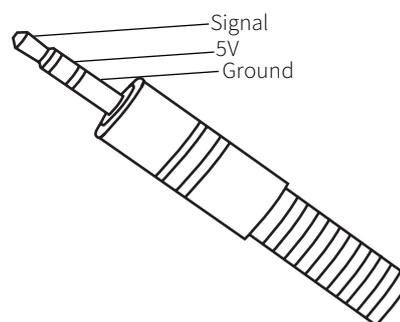


IR Receiver - IRR

Blustream 5V IR receiver to receive IR signal and distribute through Blustream products



IR Receiver - Stereo 3.5mm

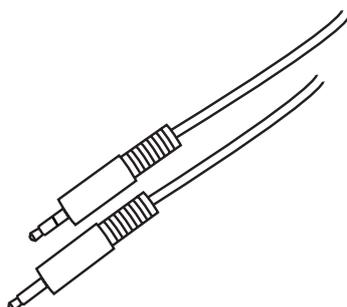


IR Control Cable - IRCAB

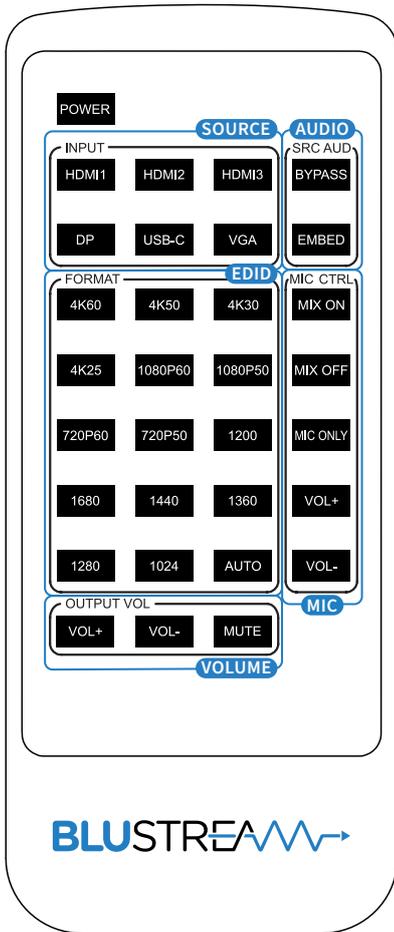
Blustream IR Control cable 3.5mm Mono to 3.5mm Stereo for linking third party control solutions to Blustream products.

Compatible with 12V IR third party products.

Note: Cable is directional as indicated



Remote Control Description



Source Selection

Selects the source input you wish to view (HDMI 1, HDMI 2, HDMI 3, DisplayPort™, USB-C, VGA)

Audio Selection

The MFP62 supports embedding analogue audio over the source input’s audio. Select the Embed button to enable this function, and Bypass to disable this and allow the source audio to pass through.

EDID Setup

The MFP62 provides a comprehensive range of EDID settings. To deploy the desired EDID setting when using the supplied remote, simply select the button corresponding to the desired video resolution. Note that audio format will default to 2ch PCM via the remote control.

Microphone Setup

The microphone and background mixing can be adjusted via the remote control. To enable microphone and background audio mixing select the Mix On button. To disable microphone mixing select the Mix Off button. To play the microphone audio only select the Mic Only button. The remote also features the ability to adjust the volume of the microphone input.

Volume Control

Here you can increase or decrease the volume as well as mute all audio output.

RS-232 Control Port

The MFP62 can be controlled via a 3-pin Phoenix to serial RS-232 cable (supplied). All RS-232 commands must be terminated with a carriage return <CR> or \r. The communication settings and commands are as follows:

Baud Rate: 57600 bps
Data Bit: 8-bit

Parity: None
Stop Bit: 1-bit

Flow Control: None

RS-232 COMMAND	DESCRIPTION
?	Print Help Information
HELP	Print Help Information
STATUS	Print System Status And Port Status
P ON/OFF	Set System Power On or Off
KEY ON/OFF	Set System Key Control On Or Off
IR ON/OFF	Set System IR Control On Or Off
LCD ON/OFF	Set LCD Always On Or Auto Turn Off In Power On State
RESET	Reset System To Default Setting (Type "Yes" To Confirm, "No" To Discard)
RESET ALL	Reset System And Network To Default Setting (Type "Yes" To Confirm, "No" To Discard)
OUT OSD ON/OFF	Set Scaler OSD Show On or Off
OUT RES rr	Set Scaler Output Resolution rr=00: 1024x768@60Hz rr=01: 1280x800@60Hz rr=02: 1360x768@60Hz rr=03: 1440x900@60Hz rr=04: 1680x1050@60Hz rr=05: 1920x1200@60Hz rr=06: 720p@50Hz rr=07: 720p@60Hz rr=08: 1080p@50Hz rr=09: 1080p@60Hz rr=10: 4K2K@25Hz rr=11: 4K2K@30Hz rr=12: 4K2K@50Hz rr=13: 4K2K@60Hz rr=14: DCI 4K2K@25Hz rr=15: DCI 4K2K@30Hz rr=16: DCI 4K2K@50Hz rr=17: DCI 4K2K@60Hz rr=18: Auto
OUT FREQ mm	Set Output Frequency Mode mm=AUTO: Set Output Freq To Auto Change To Input Freq mm=FORCE: Set Output Freq By CMD OUT RES rr Select
OUT xx ON/OFF	Set Output xx On Or Off xx=00: Select All OUTPUT Ports xx=[01...02]: Select One OUTPUT Port
OUT xx FR yy	Select Input Port yy yy=[01...03:HDMI, 04:DP, 05:USB-C, 06:VGA]
NET DHCP ON/OFF	Set Auto IP(DHCP) ON Or OFF
NET IP xxx.xxx.xxx.xxx	Set IP Address
NET GW xxx.xxx.xxx.xxx	Set Gateway Address
NET SM xxx.xxx.xxx.xxx	Set Subnet Mask Address
NET RB	Set Network Reboot and Apply New Config!!!
NET TN xxxx	Set Telnet Port

RS-232 COMMAND	DESCRIPTION
EDID xx CP yy	Set Input xx EDID Copy From Output yy
EDID xx DF zz	Set Input xx EDID To Default EDID zz (EDID Dip Switch Must Be Switched To EDID Software) xx=00: Select All INPUT Port xx=[01...06]: Select One INPUT Port yy=[01...02]: Select One OUTPUT Port ss=[01..02]: User EDID Memory zz=00: HDMI 1080p@60Hz, Audio 2ch PCM(Default) zz=01: HDMI 1080p@60Hz, Audio 5.1ch DTS/DOLBY zz=02: HDMI 1080p@60Hz, Audio 7.1ch DTS/DOLBY/HD zz=03: HDMI 1080i@60Hz, Audio 2ch PCM zz=04: HDMI 1080i@60Hz, Audio 5.1ch DTS/DOLBY zz=05: HDMI 1080i@60Hz, Audio 7.1ch DTS/DOLBY/HD zz=06: HDMI 1080p@60Hz/3D, Audio 2ch PCM zz=07: HDMI 1080p@60Hz/3D, Audio 5.1ch DTS/DOLBY zz=08: HDMI 1080p@60Hz/3D, Audio 7.1ch DTS/DOLBY/HD zz=09: HDMI 4K@30Hz 4:4:4, Audio 2ch PCM zz=10: HDMI 4K@30Hz 4:4:4, Audio 5.1ch DTS/DOLBY zz=11: HDMI 4K@30Hz 4:4:4, Audio 7.1ch DTS/DOLBY/HD zz=12: HDMI 4K@60Hz 4:2:0, Audio 2ch PCM zz=13: HDMI 4K@60Hz 4:2:0, Audio 5.1ch DTS/DOLBY zz=14: HDMI 4K@60Hz 4:2:0, Audio 7.1ch DTS/DOLBY/HD zz=15: HDMI 4K@60Hz 4:4:4, Audio 2ch PCM zz=16: HDMI 4K@60Hz 4:4:4, Audio 5.1ch DTS/DOLBY zz=17: HDMI 4K@60Hz 4:4:4, Audio 7.1ch DTS/DOLBY/HD zz=18: DVI 1280x1024@60Hz, Audio None zz=19: DVI 1920x1080@60Hz, Audio None zz=20: DVI 1920x1200@60Hz, Audio None zz=21: HDMI 1920x1200@60Hz, Audio 2ch/5.1ch PCM zz=22: User EDID 1 zz=23: User EDID 2
EDID SAVE yy TO ss	Save Output yy EDID To User Memory ss
AUD SCA ORG	Scaler Audio Input Follow Port Selection
AUD SCA ANA	Scaler Audio Input From Analog L/R Signal
AUD PCM SCA/BYP	When Input PCM Audio, Use Scaler To Process Or Just Bypass To Output. Bitstream Audio Always Bypass HDMI1 And VGA Input Audio Always Use Scaler
AUD RX yy ORG	RX Input yy Use Original HDMI/DVI Signal
AUD RX yy ANA	RX Input yy Embedded Analog L/R yy=[01...05]: 01:HDMI1 02:HDMI2 03:HDMI3 04:DP 05:USB-C
VOL xx	Set Scaler Audio Volume xx=[00...100]: Volume Value xx=+: Volume Increase xx=: Volume Decrease
MUTE ON/OFF	Set Scaler Output Audio Mute ON Or OFF
MIC MIX mm	Set MIC And Background Audio Mix Mode mm=ON: Mix MIC And Background Audio mm=BGO: Background Audio Only mm=MICO: MIC Audio Only
MIC VOL xx	Set MIC Input Audio Volume
MIC MUTE ON/OFF	Set MIC Mute On Or Off
MIC AUTOBG ON/OFF	Set Auto Decrease Background Audio On Or Off When Detect MIC Signal
MIC BGVOL pp	Set Auto Decrease Background Audio To pp Percent Of "VOL xx" pp=[00...100]: Percent Of "VOL xx" Setting
MIC BGR dd	After Speaking, The MIC Takes dd Seconds To Raise The Volume dd=[01...20]: Delay Seconds
MIC RUP rr	Set Ramp Up Background Audio Volume For rr Seconds
MIC RDN rr	Set Ramp Down Background Audio Volume For rr Seconds rr=[00]: Instant Ramp, No Delay rr=[01...20]: 0.5s Increment

Specifications

MFP62

- **Video Input Connectors:** 3 x HDMI Type A, 19-pin, female, 1 x USB-C Type C, 1 x DisplayPort™, 1x VGA
- **Video Output Connectors:** 2 x HDMI Type A, 19-pin, female
- **Audio Input Connectors:** 1 x Analogue left / right audio (3.5mm stereo jack)
- **MIC Input Connectors:** 1 x 3-pin Phoenix connector
- **Audio Output Connectors:** 1 x RCA (S/PDIF), 2 x RCA analogue left / right
- **RS-232 Serial Ports:** 1 x 9-pin RS-232 connector
- **TCP/IP Control:** 1 x RJ45, female
- **IR Input Port:** 1 x 3.5mm stereo jack
- **Product Upgrade:** 1 x Micro USB female
- **Rack-Mountable:** 1U rack height, rack ears included
- **Casing Dimensions (W x H x D):** 344mm x 44mm x 168mm, without feet
- **Shipping Weight:** 3kg
- **Operating Temperature:** 32°F to 104°F (0°C to 40°C)
- **Storage Temperature:** -4°F to 140°F (-20°C to 60°C)
- **Power Supply:** 24V/1A DC

NOTE: Specifications are subject to change without notice. Weights and dimensions are approximate.

Package Contents

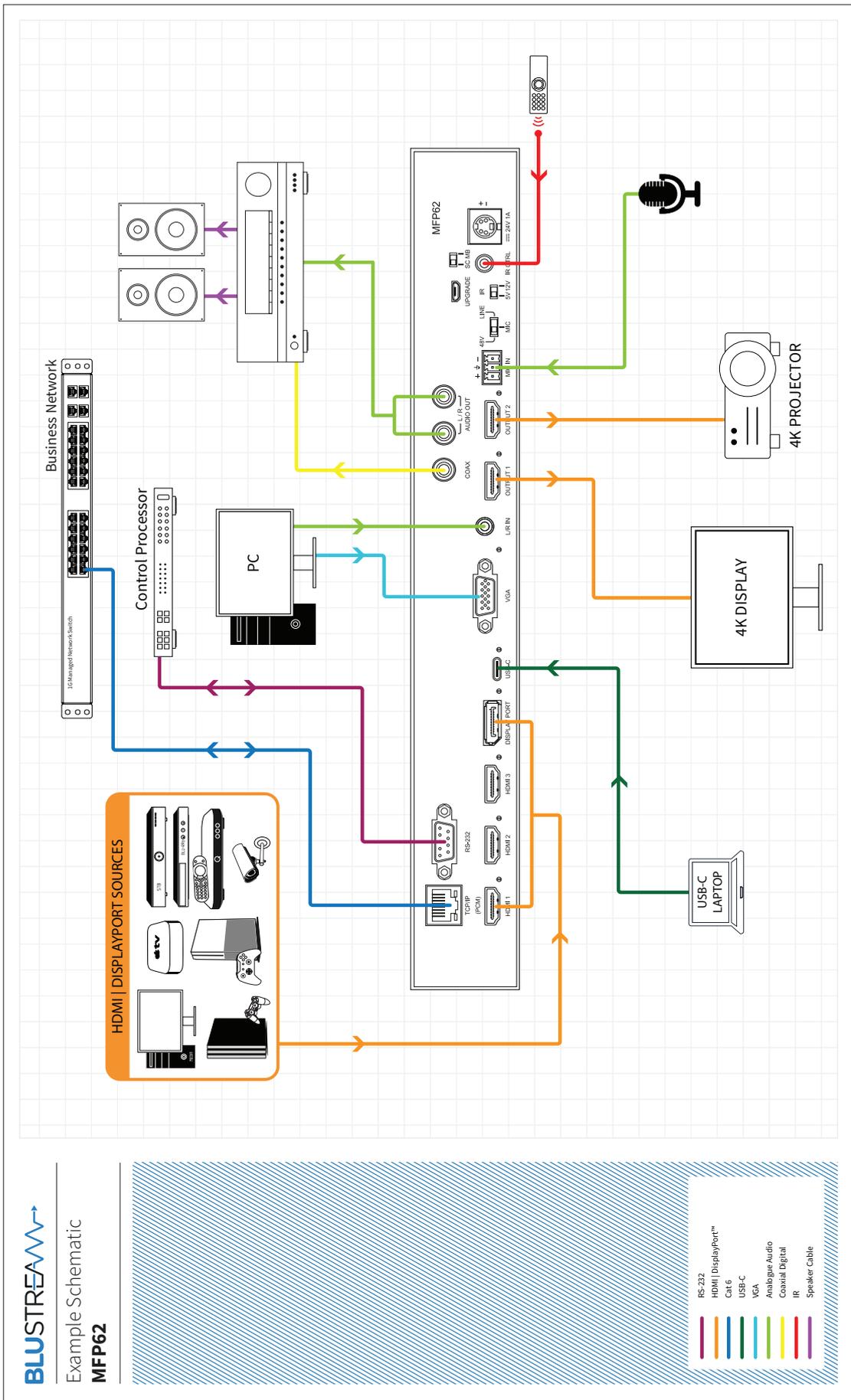
MFP62

- 1 x MFP62
- 1 x Remote Control
- 1 x 24V/1A DC Power Supply
- 1 x Rack Mounting Kit
- 1 x IR Receiver
- 1 x Quick Reference Guide

Maintenance

Clean this unit with a soft, dry cloth. Never use alcohol, paint thinner or benzene to clean this unit.

Schematic



BLUSTREAM
Example Schematic
MFP62

- RS-232
- HDMI | DisplayPort™
- Cat 6
- USB-C
- VGA
- Analogue Audio
- Coaxial Digital
- IR
- Speaker Cable



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