INSTALLATION
MANUAL

FC CE

IMPORTANT SAFETY INSTRUCTIONS

To reduce the risk of fire or electric shock, read and follow all instructions and warnings in this manual. Keep this manual for future reference.

1. Do not expose this apparatus to rain or moisture. Do not expose this equipment to dripping or splashing, and ensure that no objects filled with liquids, such as vases, are placed on the equipment. Do not use this apparatus near water.
2. Do not remove cover. No user serviceable parts inside.
3. Clean only with a dry cloth.
4. Do not block any ventilation openings. Install according to manufacturer's instructions.
5. Do not install near any heat sources such as radiators, heat registers, stoves or other apparatus (including amplifiers) that produce heat.
6. Do not override the safety purpose of the polarized or grounding plug. A polarized plug has two blades, one of which is wider than the other. A grounding plug has two matching blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
7. Protect the power cord from being walked on or pinched, particularly at the plug end and where the power cord is attached to the apparatus.
8. Only use attachments and accessories specified by the manufacturer.
9. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when the power supply cord or plug is damaged, liquid has been spilled on or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, the apparatus does not operate normally, or it has been dropped.
10. To completely disconnect this equipment from power, disconnect the power supply cord from the power outlet.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated dangerous voltage within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

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.

CAUTION

TO REDUCE THE RISK OF ELECTRICAL SHOCK:

DO NOT REMOVE COVER. NO USER SERVICEABLE PARTS INSIDE.

REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

CONTENTS

1. PRODUCT OVERVIEW

This device, when paired with a compatible HDBaseT Matrix switcher or HDBaseT transmitter, extends HDMI® over a single Category cable using HDBaseT technology allowing video and audio transmission to remote displays. In addition, the device is equipped with bidirectional IR over the same Category cable.

Since many installations are behind flat screen TVs, the B-520-RX-230-IR-W receiver is made to mount in a dual gang box. This receiver is PoC capable when paired with a compatible HDBaseT matrix switcher, and can be optionally powered at the receiver via the front thread-locking power connector or the optional rear remote power connection.

This unit supports all HDMI defined audio and video formats, up to 4K2K@30 Hz.

2. FEATURES

- In wall receiver (dual gang box) design for easy installation
- Extends all HDMI formats up to:

Cable Type	Cat 5e/6	Cat 6a/7
1080i/720p 24-bit color	200'	230'
Full HD 1080p 24-bit color	200'	230'
Full HD 1080p 36-bit color	200'	230'
Ultra HD 4K2K@30 Hz*	115'	130'

When using a compatible HDBaseT transmitter. (Not applicable when using the B-520-MTRX-230 switchers)

- Supports all HDMI supported audio formats, including DTS-HD Master and Dolby TrueHD
- Bidirectional IR
- PoC capable - does not need a separate power supply when paired with a compatible Matrix switcher

3. PACKAGE CONTENTS

- 1x B-520-RX-230-IR-W Receiver
- 4x Mounting Screws
- 1x Installation Manual
- 2x HDBaseT Labels
- 1x Decora Wall Plate
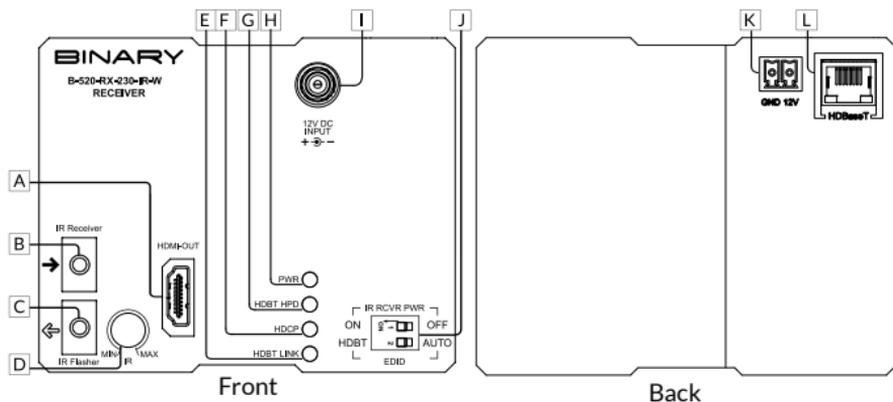
4.1. B-520-RX-230-IR-W Receiver

FIGURE 1: Receiver Layout

A. HDMI Out

HDMI Output to connect to the HDMI input of a sink(display)

B. IR Receiver

IR input to connect to IR Receiver or to output of a control system

C. IR Flasher

IR output to connect to IR Flasher

D. IR Flasher level

Adjusts the intensity of the IR Flasher output

E. HDBT Link LED

Lights up green when synced with transmitter or Matrix Switcher

F. HDCP LED

Lights up green when HDCP link has been established; Blinks when content does not require HDCP; Off when no HDMI signal is recognized

G. HDBT HPD LED

Lights up green when Hot Plug event is Detected

H. Power LED

Lights up blue when the unit has power

I. Thread-locking Power Connector

Connect to an optional 12V DC, 2A power supply (B-PS-12VDC-2A) The recommended cabling is one 18 gauge per leg or two 22/24 gauge per leg

J. **DIP Switch**
   IR RCVR PWR OFF/ON
   OFF to connect to control system | ON to connect to IR Receiver

K. **Optional Remote Power (2 Conductor Removable)**
   Optional connection for power from a remote power source; this connection requires a wire run within the wall. Use only when either the Latch-Locking Power Jack or PoC from the matrix switcher is not being used. Do not connect both power sources.

L. **HDBaseT (RJ45)**
   To connect to the HDBaseT RJ45 port on matrix switcher or transmitter

5. INSTALLATION

5.1. B-520-RX-230-IR-W Receiver Installation

1. Run Category cable from the location of the matrix switcher or transmitter to the remote location of the receiver.

2. Mount the device receiver in the desired location.

3. Connect the Category cable to the device receiver's HDBaseT RJ45 port.

4. Connect an IR flasher and/or IR receiver if being used. Refer to Section 6.2.

5. Connect an HDMI cable from the HDMI Out of device receiver to the display.

6. If the receiver is paired with a non-PoC transmitter, connect an optional power supply (B-PS-12VDC-2A) to the device, then to the AC outlet. When the receiver is connected to a Matrix switcher, no power supply is required.
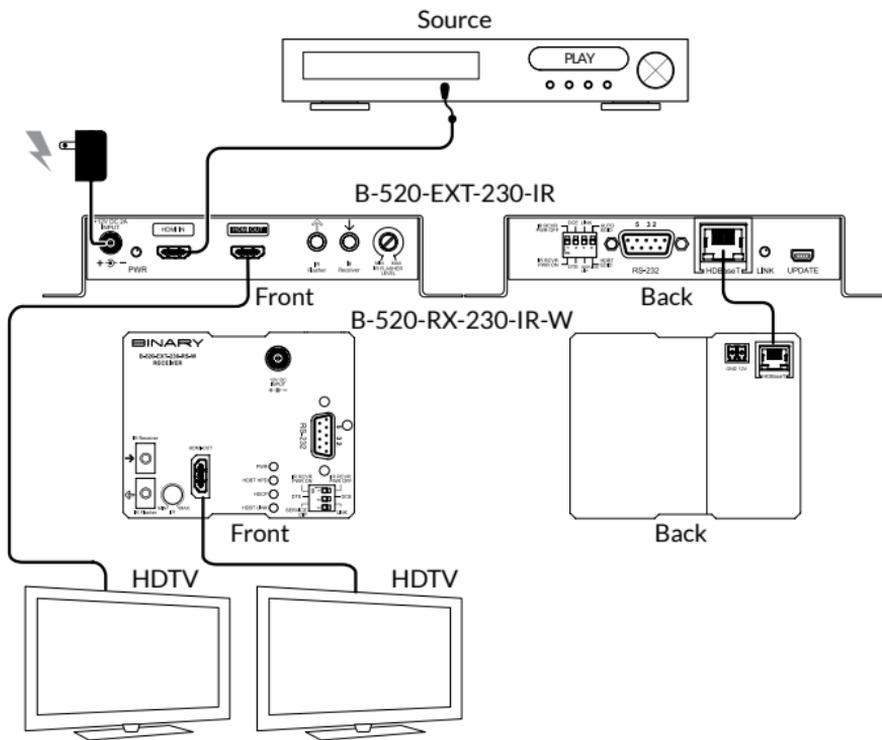
FIGURE 2 : Application Diagram –Matrix Switcher

Note: When a receiver is paired with a matrix switcher with PoC, the HDBaseT link sends power to the receiver.

FIGURE 3 : Application Diagram with non-PoC Transmitter

Note: If the receiver will be paired with a non-PoC transmitter, then both the transmitter and receiver will need to be powered separately with an optional power supply (B-PS-12VDC-2A).

6.1. HDBaseT Link (RJ45) Connection

This device is specified to operate with Category cables for communication between the transmitter and receiver. The transmission path may include a maximum of two keystones and two patch cables, as long as the total length does not exceed 200' for Cat 5e/6 and 230' for Cat 6a/7.

TIA/EIA Standard 568-B (Gold Pins Facing Up)

Pin 1	White/Orange	Pin 5	White/Blue
Pin 2	Orange	Pin 6	Green
Pin 3	White/Green	Pin 7	White/Brown
Pin 4	Blue	Pin 8	Brown

TIA/EIA-568-B

FIGURE 4: RJ45 Connections

Note: The HDBaseT Link RJ45 connection includes a 12V signal. Do not connect anything to this port other than an HDBaseT transmitter or receiver.

6.2. IR Control Connections

Bidirectional IR signals can be transmitted between a matrix switcher or transmitter and receiver through Category cable. The IR signal can be generated either from a powered receiver or from a control system. The following section describes these two use cases.

⚠**CAUTION:** Pinout configurations for IR receivers and control systems vary. Before connecting to this input, review this section carefully in order to match the pinouts for the device.
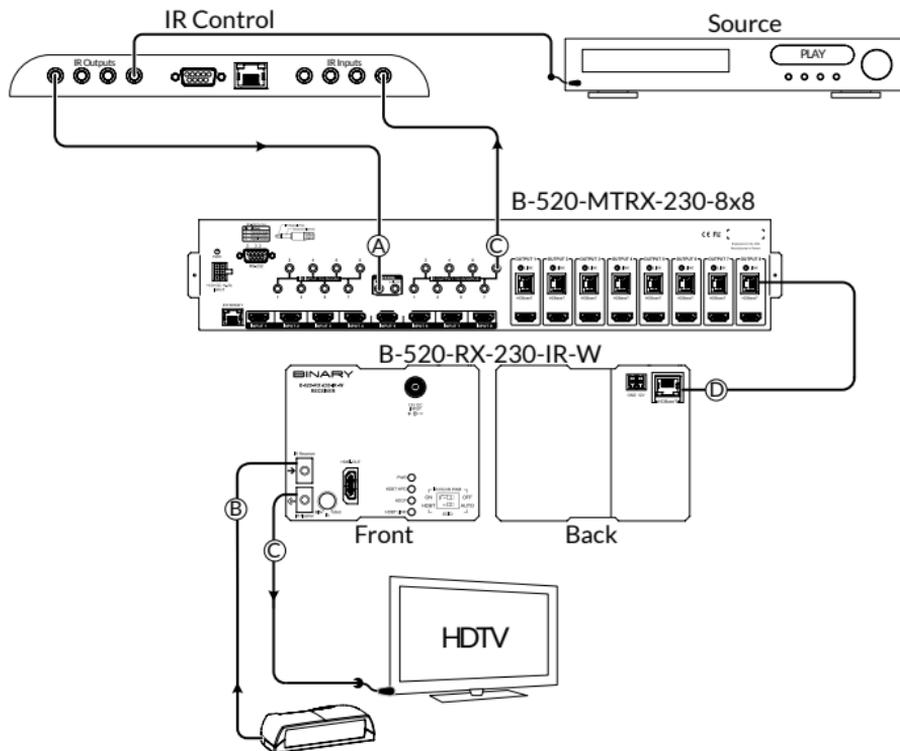

FIGURE 5: IR Connections

Note: Arrow direction indicates signal flow.

- Ⓐ IR Receiver In-3.5 mm Mono—See Section 6.2.2
- Ⓑ IR Receiver In-3.5 mm Stereo—See Section 6.2.1
- Ⓒ IR Flasher Out-3.5 mm Mono—See Section 6.2.3
- Ⓓ HDBaseT Link Category cable (RJ45)—See Section 6.1

6.2.1. Point-to-Point IR Control - Stereo (3.5mm) IR Receiver

When using a powered IR receiver, the DIP switch for IR RCVR PWR should be set to ON. In this case a 3.5mm (1/8") stereo jack has to be used to send 9V DC power to the receiver.

⚠**CAUTION: DO NOT** connect a mono cable to this connection as damage may occur.
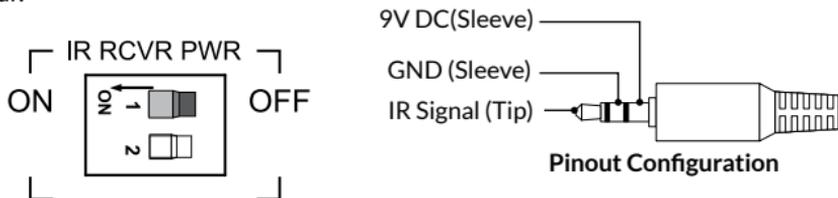

FIGURE 6: Point-to-Point IR settings

6.2.2. Control System - Mono (3.5mm) IR Receiver

When using a control system which generates the signal through a mono jack, the IR RCVR PWR switch should be in the OFF position.
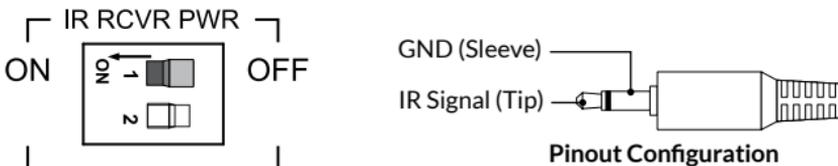

FIGURE 7 : Control System IR settings

6.2.3. IR Flasher Out-3.5mm Mono – Receiver

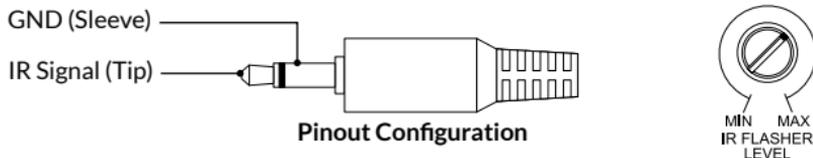The IR Flasher level adjusts the intensity of the IR Flasher output

FIGURE 8: IR Flasher Out

6.3. Thread-Locking Power Connector

This receiver is Power over Cable (PoC) capable and therefore can be powered from a matrix switcher, transmitter or at the receiver. The Power over Cable feature enables the receiver to be powered from either end when paired with a compatible HDBaseT transmitter or HDBaseT matrix switcher.

⚠ **CAUTION: DO NOT** connect the power supply to the device until it is completely installed and all connections have been made.

6.4 Optional Remote Power

Power for the B-520-RX-230-IR-W receiver can be supplied via a remote power source when use of either PoC or the Latch-Locking Power Jack is not desired. The connection is a 2 conductor removable plug located on the rear of the B-520-RX-230-IR-W receiver.

Observe the connections polarity markings. Reversing the polarity may cause damage to the product.
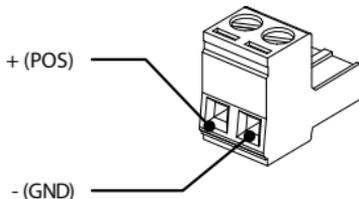

+ (POS)

- (GND)

FIGURE 9: Remote Power Pin Out

The included WPS-ACC-PWR-DC Power Plug can be used to convert the single plug of a power supply to 2 wires. This eliminates the need to cut the wires on the end of a power supply.
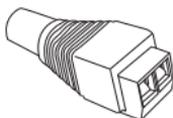

FIGURE 10: Power Plug

7. SPECIFICATIONS

Technical		
HDMI Compliance	HDMI 3D	
HDCP Compliance	Yes	
Video Bandwidth	10.2 Gbps	
HDMI over UTP Transmission	Cat 5e/6	1080i/720p 24-bit color: 200' Full HD 1080p 24-bit color: 200' Full HD 1080p 36-bit color: 200' Ultra HD 4K2K@30 Hz 115'
	Cat 6a/7	1080i/720p 24-bit color 230' Full HD 1080p 24-bit color 230' Full HD 1080p 36-bit color 230' Ultra HD 4K2K@30 Hz 130'
Input TMDS Signal	1.2V (peak-to-peak)	
Input DDC Signal	5V (peak-to-peak, TTL)	
ESD Protection	(1) Human body model: ±5kV (air-gap discharge) & ±8kV (contact discharge) (2) Core chipset — ±8kV	
IR Signal (Bidirectional)	Carrier frequency: 20–60kHz	

Connections	
HDBaseT Link	1x RJ45
HDMI	1x HDMI Type A (19-pin female)
IR Receiver (In)	1x 3.5mmMono/Stereo
IR Flasher (Out)	1x 3.5mmMono
Power	Thread-Locking

Controls	
DIP Switch	IR RCVR PWR OFF/ON

Mechanical	
Housing	Metal enclosure
Dimensions	3.48"x2.8"x0.66"
Weight	1.1 lbs.
Power Supply	12V DC, 2A
Power Consumption	12W (max)
Operation Temperature	32–104°F
Storage Temperature	-4–140°F
Relative Humidity	20–90% RH (no condensation)
Certifications and Compliance	Product: CE, FCC, RoHS
	Power Supply: CE, FCC, RoHS, UL

8. SUPPORT

Need Help? Contact Tech Support!

Welcome to Binary. This product is engineered to provide years of exceptional reliability. We appreciate your business, and we stand committed to providing our customers with the highest degree of quality and service in the industry.

If you need further clarification, please call tech support at **866.838.5052**, or email **support@snapav.com**. For other information, instructional videos, support documentation, or ideas, visit our website and view your item's product page at **www.snapav.com**.

9. WARRANTY

2-Year Limited Warranty

This Binary product has a 2-Year limited warranty. This warranty includes parts and labor repairs on all components found to be defective in material or workmanship under normal conditions of use. This warranty shall not apply to products that have been abused, modified or disassembled. Products to be repaired under this warranty must be returned to SnapAV or a designated service center with prior notification and an assigned return authorization number (RA).

10. NOTES

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