



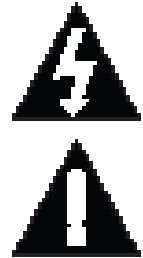
INT-1X4B-1H Owners Manual



Important Safety Instructions

- » Please completely read and verify you understand all instructions in this manual before operating this equipment.
- » Keep these instructions in a safe, accessible place for future reference.
- » Heed all warnings.
- » Follow all instructions.
- » Do not use this apparatus near water.
- » Clean only with a dry cloth.
- » Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- » Use only accessories specified or recommended by Intelix.
- » Explanation of graphical symbols:

- ◊ Lightning bolt/flash symbol: the lightning bolt/flash and arrowhead within an equilateral triangle symbol is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product enclosure which may be of sufficient magnitude to constitute a risk of shock to a person or persons.
- ◊ Exclamation point symbol: the exclamation point within an equilateral triangle symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.



- » **WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE AND OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, SHOULD NOT BE PLACED ON THIS APPARATUS.**
- » Use the mains plug to disconnect the apparatus from the mains.
- » **THE MAINS PLUG OF THE POWER CORD MUST REMAIN READILY ACCESSIBLE.**
- » Do not defeat the safety purpose polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two 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 your obsolete outlet. **Caution! To reduce the risk of electrical shock, grounding of the center pin of this plug must be maintained.**
- » Protect the power cord from being walked on or pinched particularly at the plugs, convenience receptacles, and the point where they exit from the apparatus.
- » Do not block the air ventilation openings. Only mount the equipment per Intelix’s instructions.
- » Use only with the cart, stand, table, or rack specified by Intelix or sold with the equipment. When/if a cart is used, use caution when moving the cart/equipment combination to avoid injury from tip-over.
- » Unplug this apparatus during lightning storms or when unused for long periods of time.
- » **Caution! Shock Hazard.** Do not open the unit.
- » Refer to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.



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Product Overview

The Intelix INT-1X4B-1H 1:4 HDBaseT distribution amplifier accepts a single HDMI input and splits into four HDBaseT outputs. The INT-1X4B-1H is designed with an HDMI loop out which is intended to cascade to additional INT-1X4B-1H units to distribute to multiple displays via HDBaseT. It supports video resolutions up to 4K@60Hz / 4:2:0 / 8bit deep color and all HDMI audio formats. It can extend 1080p signals on each output up to 229 feet (70 meters) and 4K signals up to 131 feet (40 meters) over a single CAT6 Ethernet cable. It supports Power over HDBaseT (PoH), which allows the compatible receivers to be powered from the splitter over the Ethernet cables. It supports bidirectional IR and RS232 pass-through and loop output.

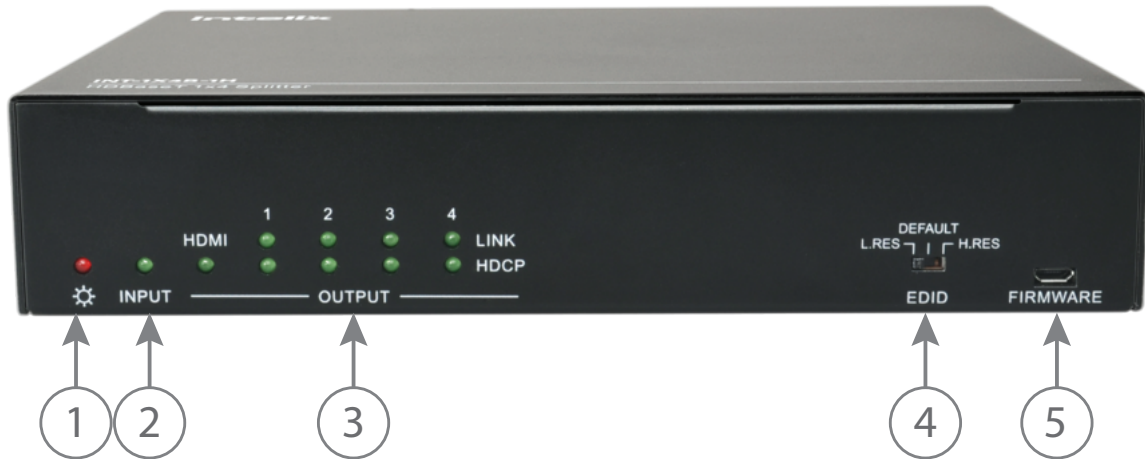
The Intelix INT-HD70-RX and INT-HDX100-RX are compatible Intelix receivers with the INT-1X4B-1H distribution amplifier.

Package Contents

- INT-1X4B-1H 1:4 HDBaset Distribution Amplifier
- Quick Install Guide
- (1) 3-pin to 3-pin RS232 Cable (for RS232 cascading)
- (1) 3-pin to DB9 RS232 Breakout Cable
- (1) 3.5mm Audio Cable (for IR cascading)
- (1) IR Emitter
- (4) IR Broadband Receivers (30-55KHz)
- (1) DC24V 2.71A power supply with US power plug
- (2) Mounting clips with mounting screws
- (4) Plastic Cushions

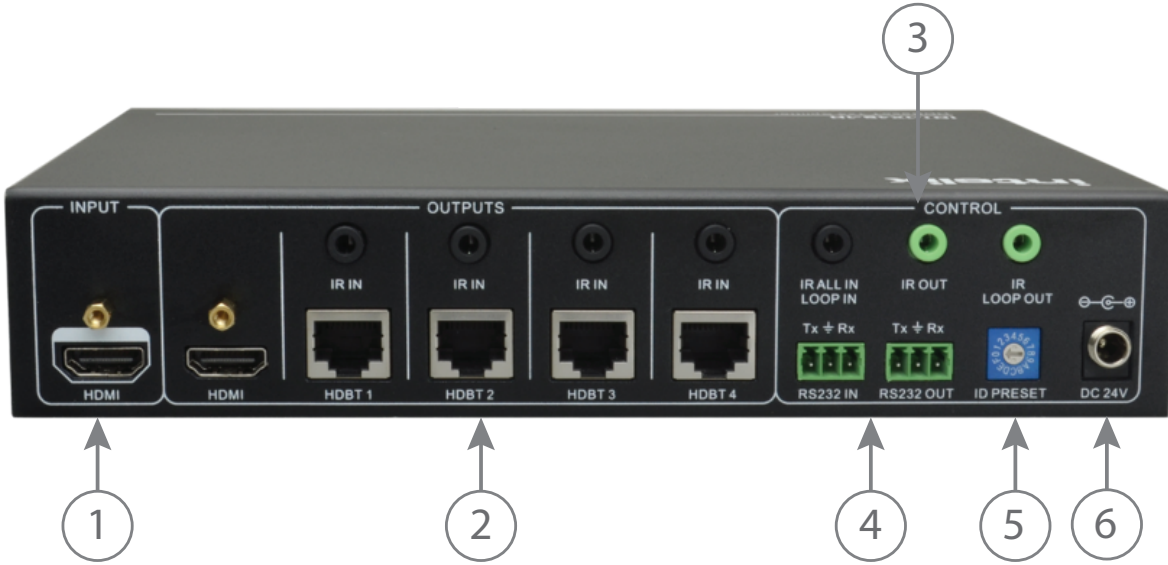
Front and Rear Panel View

Front View



1. **POWER LED** - Illuminates solid RED when power is properly applied
2. **INPUT LED** - Illuminates solid GREEN when there is an ACTIVE HDMI source
3. **OUTPUT LEDS**
 - *HDMI*- Illuminates solid GREEN when there is an HDMI output link
 - *LINK*- Each LINK LED illuminates solid GREEN when there is a valid connection between the distribution amps HDBaseT output and a compatible HDBaseT receiver
 - *HDCP*- Each HDCP LED illuminates solid GREEN when the corresponding receiver supports HDCP and blinks GREEN when the corresponding receiver does not support HDCP. Each LED is off when there is no connected corresponding receiver
4. **EDID** - Dip switch setting for EDID management
 - *L.RES* - The INT-1X4B-1H reads EDID from all connected displays, and then the source device will automatically obtain the EDID which contain the lowest resolution
 - *DEFAULT*- Reset to the default EDID to distribute 4K@30Hz video
 - *H.RES*- The INT-1X4B-1H reads EDID from all connected displays, and then the source device will automatically obtain the EDID which contain the highest resolution
5. **FIRMWARE** - USB port for firmware upgrade procedure

Rear View



1. **HDMI IN** - HDMI input port for connecting HDMI source
2. **OUTPUTS**
 - *HDMI*- HDMI loop output for connecting to a local display or cascading the same HDMI source to another INT-1X4B-H
 - *HDBT 1-4* - Four HDBaseT RJ45 jacks with PoH support for connecting four compatible HDBaseT receivers
 - *IR IN*- Four 3.5mm IR input jacks for connecting up to four IR receivers
3. **IR CONTROL** - 3.5mm IR input port for connection to IR receiver or 3rd party IR system
 - *IR ALL IN/LOOP IN* - 3.5mm IR IN jack for connecting an IR receiver or cascading to a previous INT-1X4B-1H in a cascading topology
 - *IR OUT* - 3.5mm IR OUT jack for connecting an IR emitter
 - *IR LOOP OUT* - A 3.5mm IR LOOP output jack for cascading to another INT-1X4B-H
4. **RS232 CONTROL** - 3.5mm IR output port for connection to IR emitter
 - *RS232 IN*- 3-pin RS232 connector for 3rd party control
 - *RS232 OUT* - If cascading multiple units, use the supplied 3-pin to 3-pin cable to connect the output to the RS232 IN on the next INT-1X4B-1H in a cascading topology
5. **ID PRESET** - Assigns a single digit ID to the INT-1X4B-1H when cascading multiple INT-1X4B-1H units and using RS232 control, therefore each splitter must have a unique ID. Use a small, flathead screwdriver to set the ID. There are sixteen positions, with 0 at the fully counterclockwise position and F at the fully clockwise position. After setting the ID, the device must be restarted for the new ID to take effect.
6. **DC 24V** - Locking power supply port

Installation Instructions

Quick Start

1. Mount the distribution amplifier
2. Set EDID mode and device ID
3. Connect source
4. Connect displays
5. Connect IR control (optional)
6. Connect RS232 control (optional)
7. Daisy-chain additional distribution amplifiers (optional)
8. Apply power
9. Verify signal status

Mount the Distribution Amplifier

At least 2 inches of free air space is required on both sides of the INT-1X4B-1H for proper side ventilation. Avoid mounting the INT-1X4B-1H near a power amplifier or any other source of significant heat.

Attach the shelf feet to the bottom of the INT-1X4B-1H if using on a rack shelf or desktop.

Attach the mounting rails to the sides of the INT-1X4B-1H if mounting to under a table or on a wall.

Set EDID Mode and Device ID

Set the desired EDID mode on the front INT-1X4B-1H. There are three modes to choose from

- *L.RES* - The INT-1X4B-1H reads EDID from all connected displays, and then the source device will automatically obtain the EDID which contain the lowest resolution
- *DEFAULT*- Reset to the default EDID to distribute 4K@30Hz video
- *H.RES*- The INT-1X4B-1H reads EDID from all connected displays, and then the source device will automatically obtain the EDID which contain the highest resolution



When sending RS232 through the HDBaseT outputs to the displays, each distribution amplifier should have a unique identifier assigned to it when using multiple INT-1x4B-1H units in a cascaded topology. On the back of the INT-1X4B-1H, use a small, flat blade screwdriver to set the ID PRESET of each INT-1X4B-1H to the desired value.

Connect Source

Connect a source device to the HDMI input using an HDMI cable that is less than or equal to 5 meters in length. For a source device that is further away, an HDMI extension device will be required to complete the connection.

Connect Displays

HDMI Output

Connect the display device or second INT-1X4B-1H to the HDMI output using an HDMI cable that is less than or equal to 5 meters in length. For a display that further away, it is highly recommended to utilize the HDBaseT outputs.

HDBaseT Outputs

For all HDBaseT cabling, the EIA/TIA-568B crimp pattern must be used on Category 6 F/UTP or greater cable. In areas with large amounts of electromagnetic (EM) or radio frequency (RF) interference, a shielded variety of Category 6 or greater cable is recommended with shielded connectors on both ends of the selected cable.

Connect the HDBaseT receiver to the display per the manufacturer's instructions. Connect the HDBaseT cable to the distribution amplifier and the HDBaseT receiver.

Connect IR Control (Optional)

The INT-1X4B-1H has an advanced bidirectional IR control protocol through the HDBaseT output port, which allows for the control of the source or displays. Intelix recommends using the INT-HD70-RX and the INT-HDX100-RX for installations which require IR extension.

Only use Intelix branded IR components, DIGIB-EMT (IR transmitter) or DIGIB-EYE (IR receiver) with the INT-1X4B-1H. Third party 12V DC IR components are not compatible with the INT-1X4B-1H. The DIGIB-EYE and DIGIB-EMT are sold separately.

Source Device Control via Remote IR

An IR signal passed from the display location through the HDBaseT connection can provide control of the source device.

Attach the plastic end of the supplied IR receiver of the source device. Insert the TS 3.5 mm plug of the IR emitter to the IR output port (IR OUT) of the distribution amplifier for the source device to control.

Remote Display Control via Local IR

An IR signal may be passed to a remote display location through the HDBaseT connection. In order to extend an IR signal to a remote display, the included IR receiver must be connected to the IR input port (IR IN) of the distribution amplifier.

Insert the TRS 3.5 mm plug of the IR receiver to the IR input port (IR IN) of the distribution amplifier.

Connect RS232 Control (Optional)

In addition to traditional RS232 control, the INT-1X4B-1H has an advanced RS232 control mechanism which allows RS232 tunneling through the HDBaseT output port to control remote devices. Intelix recommends using the INT-HD70-RX and the INT-HDX100-RX for installations which require RS232 extension.

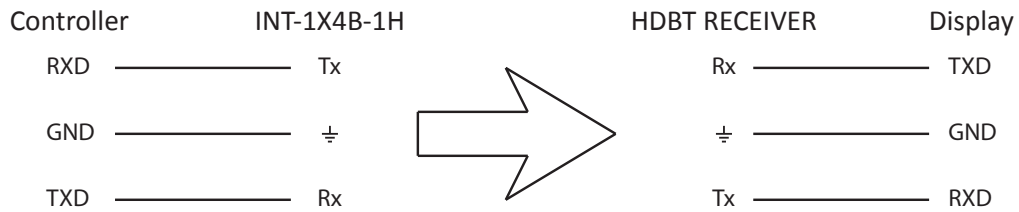
The RS232 control port requires a standard straight-through serial cable for operation, which is included with the product. The default settings for the RS232 port are:

- 9600 baud
- 8 Data Bits
- 1 Stop Bit
- Parity = none

While the INT-1X4B-1H requires RS232 commands to be sent to it at 9600 baud, multiple baud rates are available to communicate with the remote devices.

Connect the included straight-through serial cable between the RS232 port on the INT-1X4B-1H and the controller.

Some controllers may not have a DE9 port available for RS232 communication, but may have removable terminal block connections. Consult the manual of the control device(s) to determine which pins the TX/RX signals are carried on. Be sure to always connect TX to RX and RX to TX.



Daisy-chain Additional Distribution Amplifiers

A maximum total of (3) INT-1X4B-1H distribution amplifiers may be connected to distribute a single source signal to up to 12 displays via HDBaseT extenders.

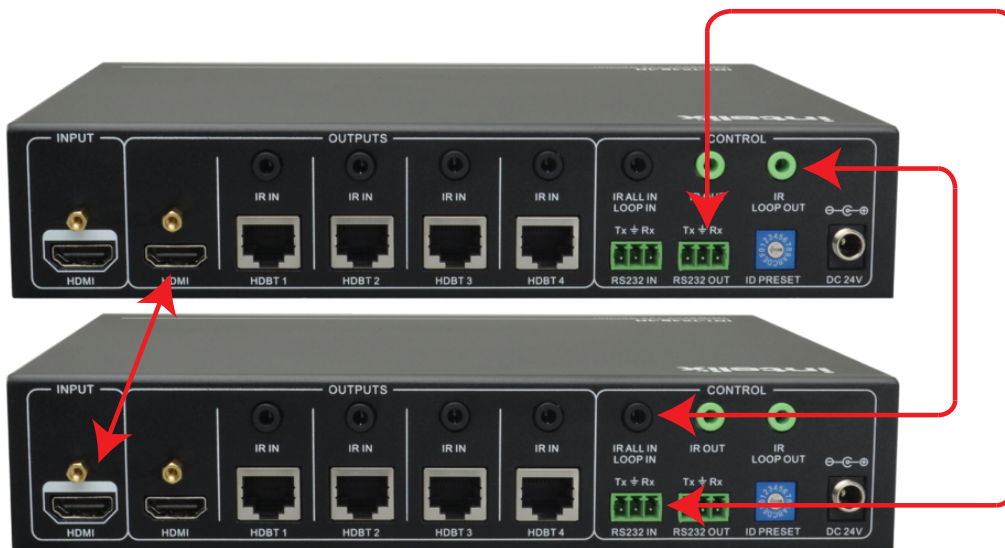
Assign Unique Identifier for RS232 Control



When sending RS232 through the HDBaseT outputs to the displays, each distribution amplifier should have a unique identifier assigned to it when using multiple INT-1x4B-1H units in a cascaded topology. On the back of the INT-1X4B-1H, use a small, flat blade screwdriver to set the ID PRESET of each INT-1X4B-1H to the desired value.

Daisy-chain Cabling

1. Connect the HDMI output of the first distribution amplifier to the HDMI input of the next distribution amplifier with an HDMI cable.
2. If sending IR to the remote display, connect the IR LOOP OUT port of the first distribution amplifier to the IR ALL IN / LOOP IN port of the next distribution amplifier with the supplied IR Loop Cable.
3. If sending RS232 to the remote display, connect the RS232 OUT port of the first distribution amplifier to the RS232 IN port of the next distribution amplifier with the supplied RS232 Loop Cable.

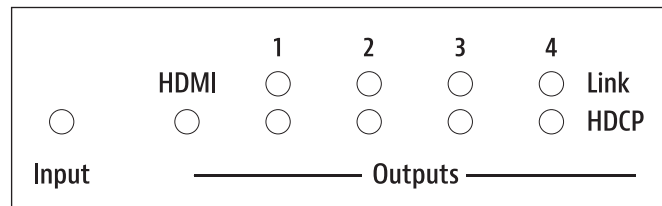


Apply Power

Plug the power supply into the power input port on the rear of the distribution amplifier. Twist the locking ring clockwise to prevent accidental disconnection of power.

Verify Signal Status

The LEDs on the front of the INT-1X4B-1H will assist in verifying the operation in the system without having to leave the primary equipment area.



Input LED

- LED is off when an active source is not present.
- LED is on when an active source is present.

HDMI Output LED

- LED is off when a display is not present or powered on.
- LED is flashing when source content is not encrypted.
- LED is solid when source content is encrypted.

HDBaseT Link LEDs

- LED is off when a compatible HDBaseT receiver is not connected to the HDBaseT port.
- LED is on when a compatible HDBaseT receiver is connected to the HDBaseT port.

Note: If the LED is flickering, there is poor communication between the INT-1X4B-1H and the HDBaseT receiver, which may indicate a cabling issue or interference.

HDBaseT HDCP LEDs

- LED is flashing when source content is not encrypted.
- LED is solid when source content is encrypted.

Cabling Requirements

HDBaseT Cabling

To ensure proper performance of the INT-1X4B-H, it is recommended that you use solid core, shielded Category 6 F/UTP cabling at a minimum. Category 5e F/UTP may perform well but may not support power over HDBaseT reliably over longer distances.



When using shielded category cabling **ALWAYS...**

-use shielded connectors
-properly ground the category cable

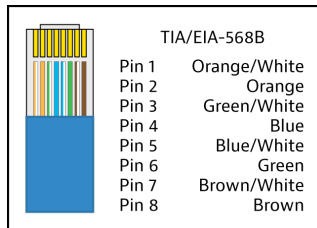
For optimized HDBaseT performance use the following Liberty Wire and Cable branded cabling;

Category 6 plenum; **24-4P-P-L6SH**

Category 6A plenum; **24-4P-P-L6ASH**

Category 6 NON-plenum; **24-4P-L6SH**

Category 6A NON-plenum; **24-4P-L6ASH**

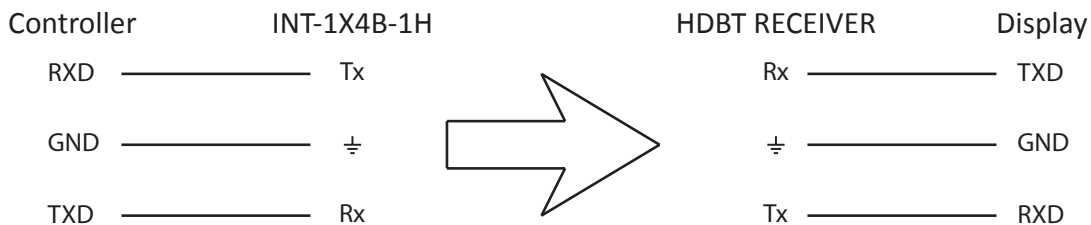


Twisted Pair Wiring

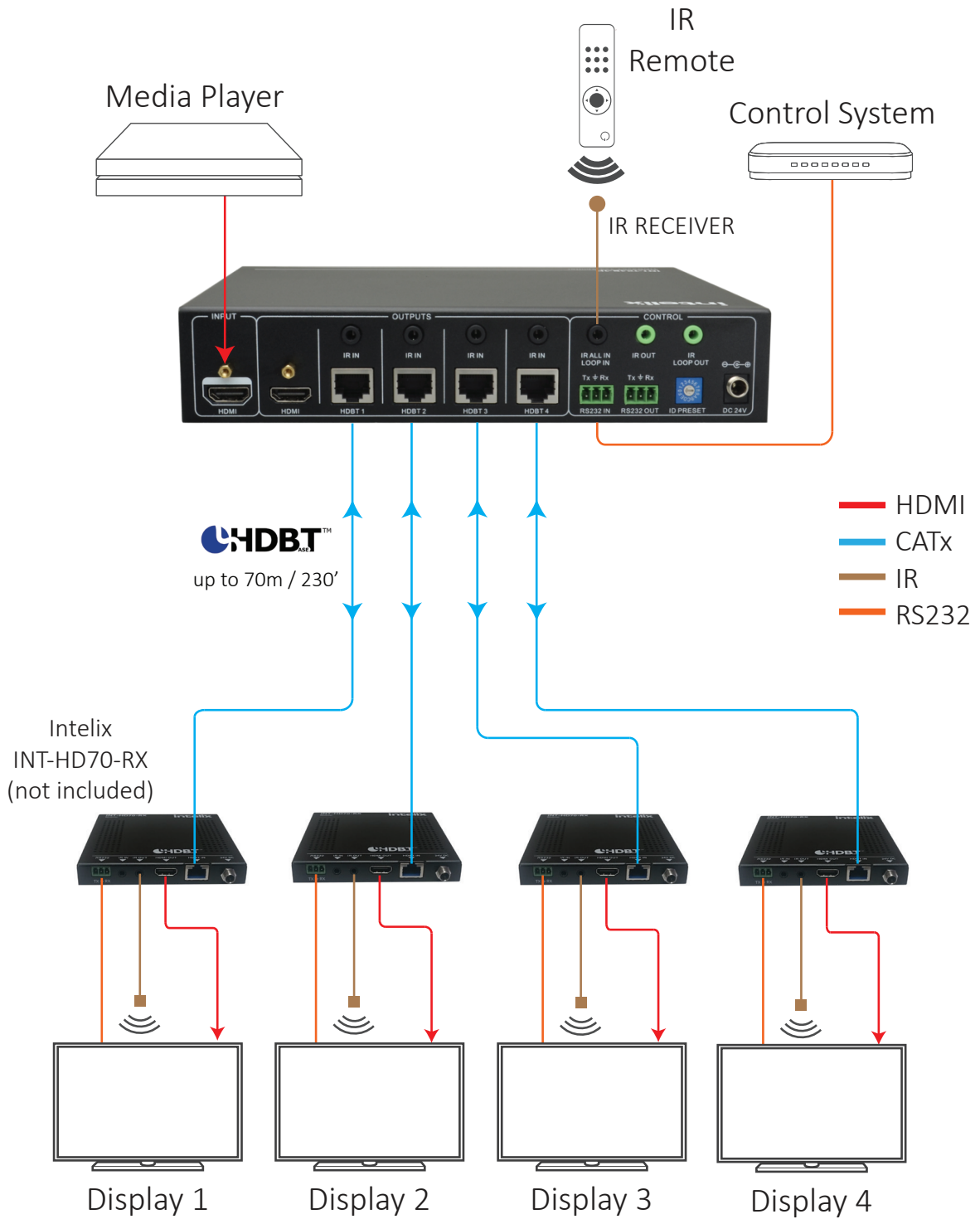
Use TIA/EIA-568B wiring for Category 6 connection between send and receive units.

RS232 Wiring

Some controllers may not have a DB9 port available for RS232 communication, but may have removable terminal block connections. Consult the manual of the control device(s) to determine which pins the TX/RX signals are carried on. Be sure to always connect TX to RX and RX to TX.



Application Diagram



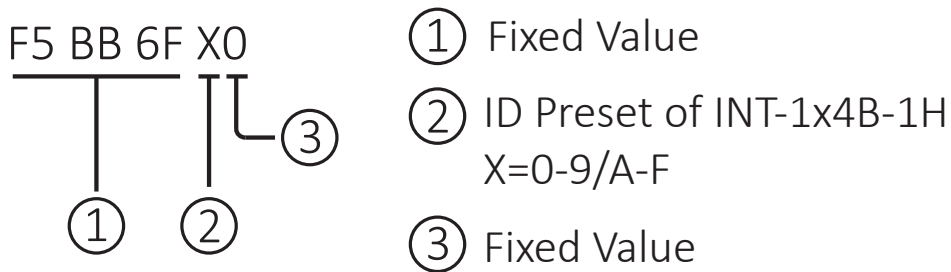
RS232 Control

The INT-1X4B-1H and the Intelix compatible receivers (INT-HD70-RX / INT-HDX100-RX) features RS232 ports to transmit RS232 signals from control systems to displays. The following baud rates are compatible to pass through the distribution amp and extenders; 2400, 4800, 9600, 19200, 38400, 57600, or 115200.

All commands below are in HEX format, to use ASCII formatted strings with the INT-1X4B-1H convert the ASCII format to HEX.

Device Selection

Use the command structure below to first select the desired INT-1X4B-1H to which you will end commands to.



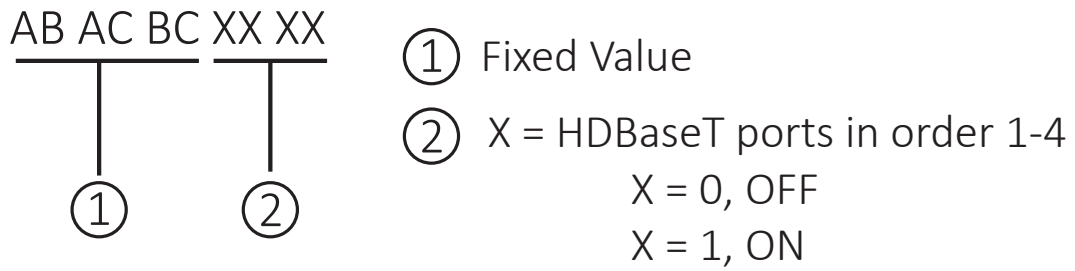
Description	Example
Selects INT-1X4B-1H with ID PRESET of 0	F5 BB 6F 00
Selects INT-1X4B-1H with ID PRESET of 9	F5 BB 6F 90
Selects INT-1X4B-1H with ID PRESET of A	F5 BB 6F A0

Tunneling Commands

Once a INT-1x4B-1H device has been selected with the above command structure, you can now tunnel RS232 commands to the HDBaseT ports from a control device connected to the RS232 IN of the INT-1x4B-1H. When tunneling commands, all HDBaseT / RS232 ports will receive the same command through ALL HDBaseT extenders unless the port is turned OFF.

Turning RS232 Communication Ports ON and OFF

To select particular HDBaseT ports to communicate discrete serial strings to, you can use the following command structure to turn the communication port either ON or OFF.



Description	Example
Turns ALL HDBaseT RS232 ports ON	AB AC BC 11 11
Turns ALL HDBaseT RS232 ports OFF	AB AC BC 00 00
Turns ports 1 and 2 ON, turns ports 3 and 4 OFF	AB AC BC 11 00

Technical Specifications

Input/Output Connections	
HDMI Input	One (1) HDMI Type A Receptacle Connector
HDBaseT Outputs	Four (4) Shielded RJ45 Female
HDMI Output	One (1) HDMI Type A Receptacle Connector
RS232 In	One (1) 3-Pole/3.5mm Euroblock
RS232 Out	One (1) 3-Pole/3.5mm Euroblock
IR ALL IN Input	One (1) 3.5mm TRS
IR Loop Out	One (1) 3.5mm TRS
IR Out	One (1) 3.5mm TRS
24V DC Power	One (1) Locking Barrel (5.5 mm OD, 2.1 mm ID)
Supported Audio, Video, and Control	
Maximum Video Compatibility at 70 m	up to 1080p
Maximum Video Compatibility at 40 m	up to 4K@60Hz / 4:2:0 / 8 bit deep color
Maximum Passive HDMI Cable Distance	5 m (16.4 ft)
Video Compliance	HDMI 2.0 and HDCP 2.2
Embedded Audio	Up to PCM 8 channel, Dolby Digital TrueHD, and DTS-HD Master Audio
Input DDC Signal	5.0 volts p-p (TTL)
Input Video Signal	0.5 to 1.0 volts p-p
RS232 Baud Rate	2400, 4800, 9600, 19200, 38400, 57600, or 115200
IR Carrier Frequency Range	33-55kHz at 5 volts
HDBaseT Signal Characteristics	
Maximum Distance	70 m (up to 1080p) , 40 m (up to 4K@60Hz / 4:2:0 / 8 bit deep color)
Cable Requirements	Solid core shielded Category 6 F/UTP cable or greater with TIA/EIA-568B crimp pattern
Bandwidth	10.2 Gbps
Chassis and Environmental	
Enclosure	Painted Aluminum
Dimensions	44 mm x 220 mm x 148 mm (1.73 in x 8.66 in x 5.83 in) – 1RU
Shipping Weight	725g (1.48 lbs.)
Operating Temperature	0° to +55° C (+32° to +131° F)
Operating Humidity	10% to 90%, Non-condensing
Storage Temperature	-20° to +70° C (+14° to +158° F)
Storage Humidity	10% to 90%, Non-condensing
Power, ESD, and Regulatory	
Power Supply Input	100V-240VAC / 50-60 Hz
Power Supply Output	24VDC / 2.71A
Power Consumption	45 watts (max)
ESD Protection	15kV
Product Regulatory	FCC, CE, RoHS
Power Supply Regulatory	CE, RoHS
Other	
Standard Warranty	5 years
Diagnostic Indicators	Power LED, HDMI Input LED, HDMI Output LED, HDBaseT Link LEDs, HDBaseT HDCP LEDs
Included Accessories	Quick Install Guide, Power Supply with US power plug, (1) 3-pin to 3-pin RS232 Cable, (1) 3-pin to DB9 RS232 Breakout Cable,(1) 3.5mm IR Cascade Cable, (1) IR Emitter, (4) IR Receivers, Shelf Feet with Screws, Mounting Rails with Screws
Optional Accessories	DIGIB-EMT (IR Emitter), DIGIB-EYE (IR Receiver) and IR-AC IR Coupling cable
Compatible Receivers (AV and PoE)	INT-HD70-RX, INT-HDX100-RX

Distances and picture quality may be affected by cable grade, cable quality, source and destination equipment, RF and electrical interference, and cable patches.

Thank you for your purchase.

For Technical Support please call our toll free number at
800-530-8998 or email us at supportlibav@libav.com

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Intelix is a brand of:



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