INT-66HDX Installation and Operation Guide

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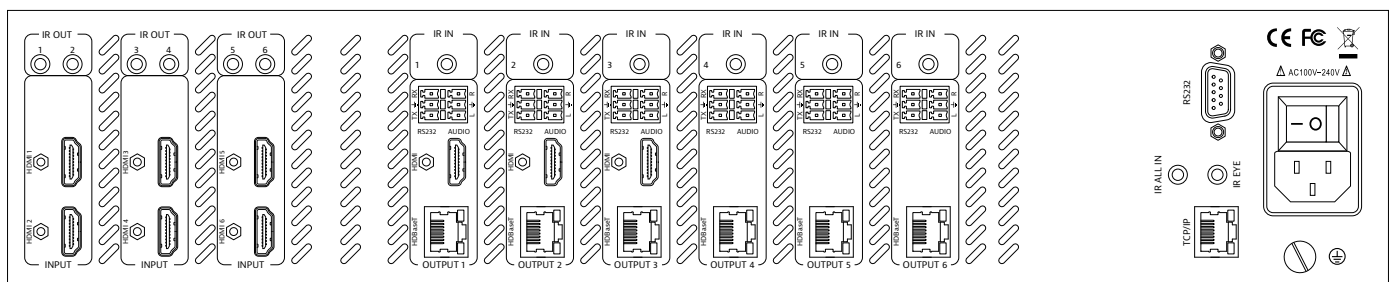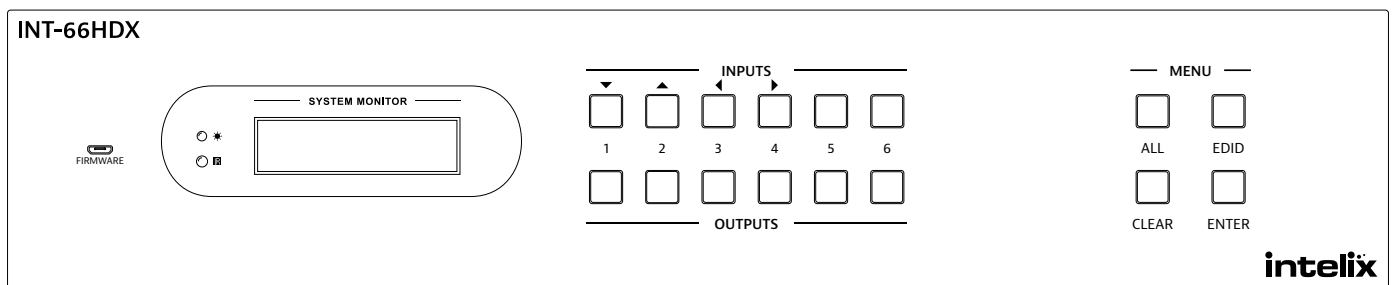
Important Safety Instructions

1. Read these instructions – All the safety and operating instructions should be read before this product is operated.

2. Keep these instructions – The safety and operating instructions should be retained for future reference.

3. Heed all warnings – All warnings on the appliance and in the operating instructions should be adhered to.

4. Follow all instructions – All operating and use instructions should be followed.

5. Do not use this apparatus near water – The appliance should not be used near water or moisture – for example, in a wet basement or near a swimming pool, and the like.

6. Clean only with a dry cloth.

7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

9. Do not defeat the safety purpose of the polarized plug. A polarized plug has two blades with one wider than the other. 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.

10. Protect the power cord from being walked on or pinched particularly at the plugs, convenience receptacles, and at the point where it exits from the apparatus.

11. Only use attachments/accessories specified by the manufacturer.

12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart or rack is used, use caution when moving the cart/ apparatus combination to avoid injury from tip-over.

13. Unplug the apparatus during lighting storms or when unused for long periods of time.

14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as; the power-supply cord or plug is damaged, liquid has been spilt or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

15. CAUTION: Servicing instructions are for use by qualified service personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

16. Do not install this equipment in a confined or built-in space such as a book case or similar unit. The equipment must remain in well ventilation conditions. Ventilation should not be impeded by covering the ventilation openings with items such as newspaper, table-cloths, curtains etc.

17. WARNING: Only use attachments/accessories (such as the battery etc.) specified or provided by the manufacturer.

18. WARNING: Refer to the information on the underside of the enclosure for electrical and safety information before installing or operating the apparatus.

19. WARNING: To reduce the risk of fire or electric shock do not expose this apparatus to rain or moisture. The apparatus shall not be exposed to dripping or splashing and objects filled with liquids, such as vases, shall not be placed on apparatus.

20. CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type.

21. WARNING: The battery shall not be exposed to excessive heat such as sunshine, fire or the like.

22. WARNING: The all-pole mains switch located on rear panel is used as the disconnect device, the switch shall remain readily operable.

23. WARNING: DO NOT INGEST BATTERY. CHEMICAL BURN HAZARD.

24. Keep new and used batteries away from children. If the battery compartment does not close securely, stop using the product and keep it away from children.

25. If you think batteries might have been swallowed or placed inside any part of the body, seek immediate medical attention.

26. When the apparatus is not in use or during its relocation, take care of the power cord and plugs; e.g. tie up the power cord with cable tie or similar. The tie must be free from sharp edges and the like that might cause abrasion of the power cord. When put into use again ensure the power cord and plugs are not damaged. If any damage is found the power cord and plugs should be replaced by items either specified by the manufacturer or that have same characteristics as the original items.

CAUTION

**RISK OF ELECTRIC SHOCK
DO NOT OPEN**

ATTENTION: RISQUE DE CHOC ELECTRIQUE - NE PAS OUVRIR

27. This lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of non-insulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock.

28. WARNING: To reduce the risk of electric shock, do not remove cover (or back) as there are no user-serviceable parts inside. Refer servicing to qualified personnel.

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

30. Protective earthing terminal. The apparatus should be connected to a mains socket outlet with a protective earthing connection.

31. CAUTION: To prevent electric shock hazard, replace grille. (CSA 60065, clause 5.3A)

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Product Overview

The Intelix INT-66HDX is a six input by six output HDBaseT/HDMI matrix switcher with HDCP 2.2 and 4K/30 video support. The matrix features advanced EDID and HDCP handling, including the ability to turn input HDCP compliance ON and OFF to ensure maximum functionality with a wide range of sources.

The INT-66HDX features HDBaseT twisted pair extension for each output, and simultaneous HDMI on the first three outputs, allowing the same signal to be routed to the HDMI connector and a remote destination with an HDBaseT receiver. The HDBaseT ports support up to 4K/30 HDMI video with audio, bidirectional wide-band IR, matrix control via IR, RS232 tunneling, and HDCP (1.4 and 2.2) up to 100 meters (328 feet). Each HDBaseT output port supplies power to the attached extender, eliminating the need for a power supply at the display end. Each output features analog stereo audio de-embedding and coaxial multichannel audio de-embedding for connection to amplifiers or DSPs.

The INT-66HDX can be controlled via front panel buttons, front panel IR, external IR, remote IR through HDBaseT extenders, RS232, and Ethernet. The matrix includes a simple IR remote control to allow IR switching. This IR remote control can be learned into universal remotes and IR based control systems. An IR All In port is provided, which allow one IR connection to control all four remote displays.

The matrix also features a full command set for RS232 and Ethernet control with third party control systems, plus control via a web browser. RS232 commands to remote displays can either be tunneled directly to the displays or be embedded in the control stream through the matrix from both the RS232 and Ethernet control ports, which will reduce the number of serial ports required for the control system.

Package Contents

Please verify the following items are in the shipping box prior to installation of the INT-66HDX.

INT-66HDX Matrix Switcher
Rack Ears with Screws - 2 ea
Shelf Feet with Screws - 4 ea
US Power Cable
RS232 Cable
Removable 3-pole Terminal Blocks (installed on matrix) - 12 ea
Infrared Receiver
Infrared Remote Control
AAA Batteries - 2 ea

Front and Rear Panels

Front Panel
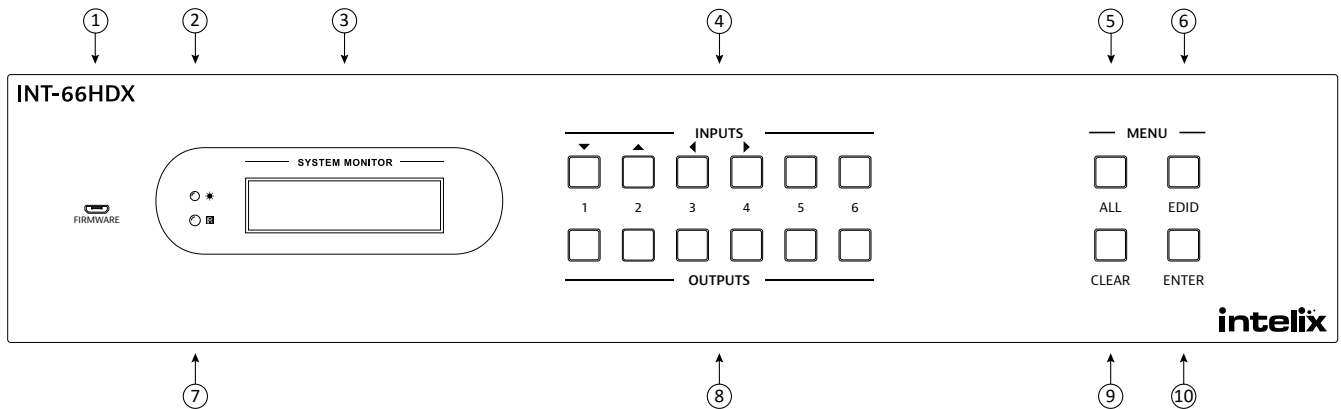
1. Micro USB port for firmware updating
2. Power indicator LED
3. LCD screen
4. Input select and LCD navigation buttons
5. All button – routes selected input to all outputs
6. EDID button – change EDID settings for inputs
7. IR receiver for matrix control via IR remote
8. Output select buttons
9. Clear button – cancels current routing selection before change is applied
10. Enter button – confirms route changes and applies new route; enter status menu

Rear Panel
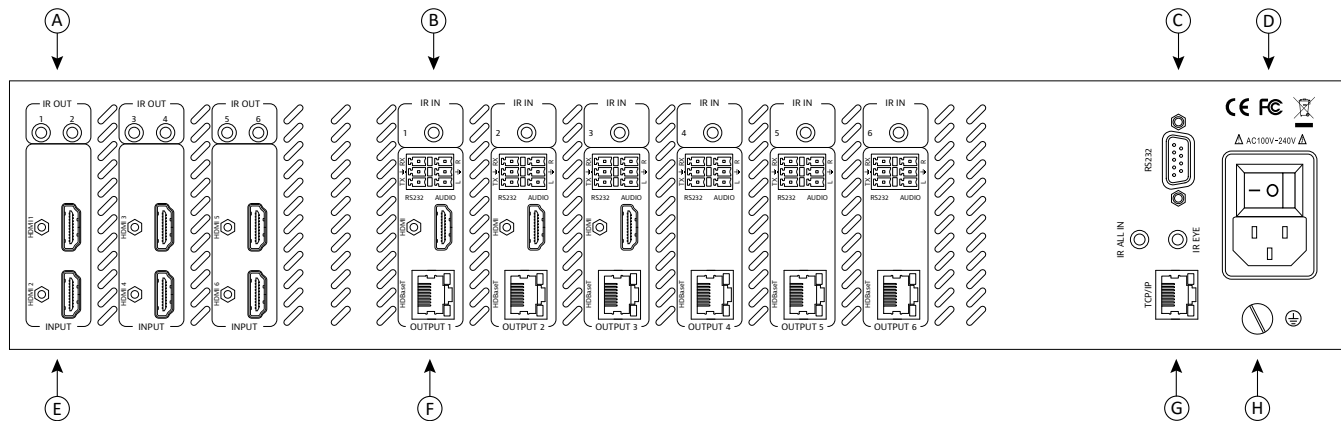
A.   IR output ports for each source device
B.   IR input ports for each HDBaseT output
C.   RS232 control input
D.   AC power input
E.   HDMI inputs
F.   Output Zone
    i.   HDBaseT outputs with PoH support
    ii.   HDMI outputs (1, 2 and 3 only)
    iii.   RS232 input for each HDBaseT output
    iv.   Unbalanced analog audio output ports
G.   TCP/IP (Ethernet) control input; also allows control via web browser; IR input for matrix when front is covered or matrix is located in a concealed location (IR EYE); IR input to send IR commands to all remote HDBaseT devices simultaneously (IR ALL IN)
H.   Ground screw

IR Remote

The included IR remote performs all of the functions available on the front panel of the INT-66HDX. Please see page 17 for information on controlling the matrix from the front panel and the IR remote.

The remote control requires two AAA batteries, which are included.
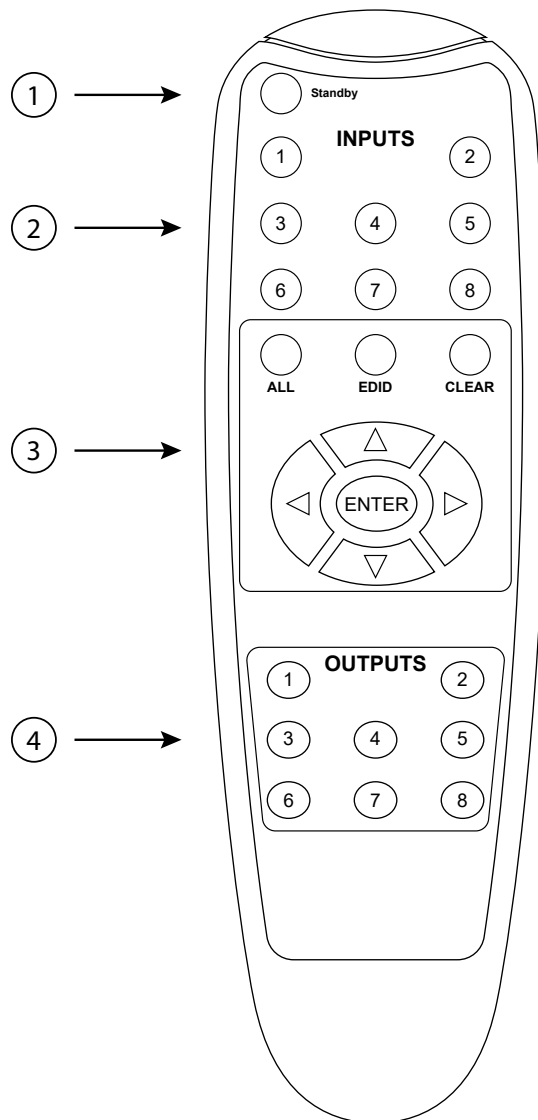
1. Standby button
2. Input selection buttons
3. Function buttons
4. Output selection buttons

Control Routing Diagrams

IR Routing

```
                    ┌──────────────┐                      ┌──────────────┐
                    │  Out 1 IR In │- - - - - - - - - - - │  Out 6 IR In │
                    └──────────────┘                      └──────────────┘

   ┌──────────────┐
   │   IR All In  │
   └──────────────┘

                    ┌──────────────┐                      ┌──────────────┐
                    │  IR bridge 1 │- - - - - - - - - - - │  IR bridge 6 │
                    └──────────────┘                      └──────────────┘

                    ┌──────────────┐                      ┌──────────────┐
                    │  HDBT Out 1  │- - - - - - - - - - - │  HDBT Out 6  │
                    └──────────────┘                      └──────────────┘
```
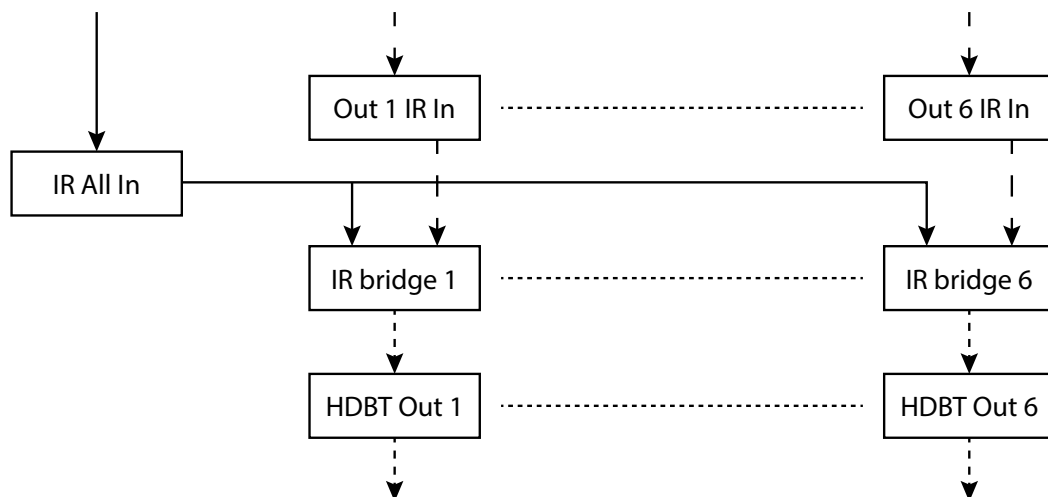
RS232 and TCP/IP to RS232 Routing

9600 baud

```
   ┌──────────────┐   ┌──────────────┐
   │   TCP/IP In  │   │   RS232 In   │
   └──────────────┘   └──────────────┘

   ┌──────────────┐   ┌──────────────┐      ┌──────────────┐                  ┌──────────────┐
   │TCP/IP to UART│<->│RS232 bridge 0│      │  Out 1 RS232 │- - - - - - - - - │  Out 6 RS232 │
   └──────────────┘   └──────────────┘      └──────────────┘                  └──────────────┘

                                            ┌──────────────┐                  ┌──────────────┐
                                            │RS232 bridge 1│- - - - - - - - - │RS232 bridge 6│
                                            └──────────────┘                  └──────────────┘

                                            ┌──────────────┐                  ┌──────────────┐
                                            │  HDBT Out 1  │- - - - - - - - - │  HDBT Out 6  │
                                            └──────────────┘                  └──────────────┘
```

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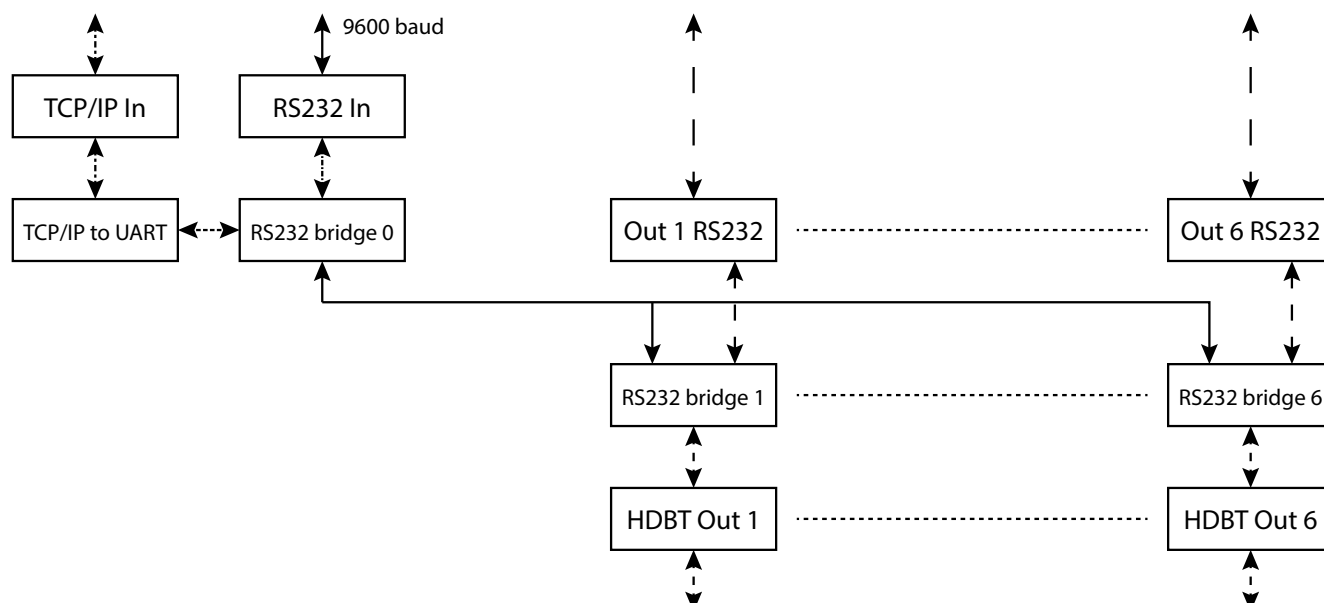
Installation Instructions

Quick Start

1. Mount the matrix
2. Connect ground (optional)
3. Connect sources
4. Connect displays
5. Connect audio (optional)
6. Connect control (optional)
7. Apply power

Mount the Matrix

At least two inches of free air space is required on both sides of the INT-66HDX for proper side ventilation. Avoid mounting the INT-66HDX near a power amplifier or any other source of significant heat.

Shelf Mounting Instructions

Attach the supplied shelf feet to the bottom of the INT-66HDX matrix.

Rack Mounting Instructions

Locate the two screws on each side of the INT-66HDX closest to the front panel. Remove the four screws on the sides of the matrix closest to the front panel. These screws will not be used to mount the rack ears to the matrix.
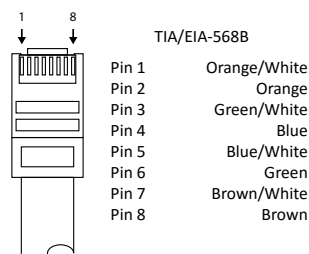
Attach the supplied rack ears to the sides of the INT-66HDX matrix. The matrix requires two rack units (2 RU) of space. It is recommended that you leave an empty rack space above and below the INT-66HDX for additional cooling.

Connect Ground

A ground screw is located on the bottom right rear of the matrix to help eliminate static shock during installation of the matrix. Connect a wire from the matrix to an earth ground.

HDBaseT Cabling Requirements

For all HDBaseT cabling, the EIA/TIA-568B crimp pattern must be used on Category 5e or greater cable. In areas with large amounts of electromagnetic (EM) or radio frequency (RF) interference, a shielded variety of Category 5e or greater cable is recommended with shielded connectors on both ends of the selected cable.

	TIA/EIA-568B
Pin 1	Orange/White
Pin 2	Orange
Pin 3	Green/White
Pin 4	Blue
Pin 5	Blue/White
Pin 6	Green
Pin 7	Brown/White
Pin 8	Brown

The HDBaseT ports provide 15 watts of Power over Ethernet to 48 volt based HDBaseT devices, which eliminates the need for a power supply with a compatible HDBaseT device. All Intelix branded HDBaseT receivers that accept remote power are compatible with the INT-66HDX.

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Connect Sources

Connect the source devices to HDMI inputs using HDMI cables that are less than or equal to 5 meters in length. For source devices that are further away, an HDMI extension device will be required to complete the connection.
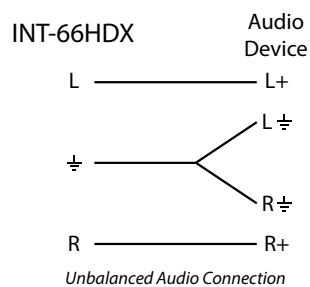
Connect Displays

HDMI Outputs

Connect the display devices to HDMI outputs using HDMI cables that are less than or equal to 5 meters in length. For display devices that are further away, it is highly recommended to utilize the HDBaseT outputs.

HDBaseT Outputs

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

Connect Audio Outputs

INT-66HDX   Audio
                             Device
L ——————— L+
                             L ⏚
⏚
                             R ⏚
R ——————— R+

Unbalanced Audio Connection

Unbalanced Audio Wiring

Using the included removable 3-pole terminal blocks, make a cable to interface between the audio device and the INT-66HDX as shown in the drawing above. Consult the documentation for the audio device to identify the left, left ground, right, and right ground audio signals.

Insert the removable 3-pole terminal block to the appropriate output zone terminal.

Coaxial Digital Audio

Connect a high quality 75 ohm coaxial digital audio cable between the audio device and the appropriate output zone port on the INT-66HDX.

Connect IR Control

The INT-66HDX features IR input connections for the remote devices connected to the HDBaseT inputs, IR input connections for the remote displays connected to the HDBaseT outputs, an IR input connection to control all remote HDBaseT devices, and an IR input connection to control the matrix. For remote displays that require IR control, Intelix recommends using the DIGI-HD60C-R or DIGI-HDX-R.

Only use the included IR receiver or the IR-AC IR adapter cable (sold separately) with the INT-66HDX4. The IR adapter cables allow third party controllers to connect directly to the IR input ports of the INT-66HDX. If addition IR receivers are required, the DIGIB-EYE is a compatible substitute. Third party 12V DC IR components are not compatible with the INT-66HDX.

Remote Display Control via IR

An IR signal passed directly from the matrix location or from a third party control system can provide control of the display device through the HDBaseT connection.

Insert a compatible IR receiver into the IR input port (IR IN) of the matrix for the display device to control.

Global Control via IR

An IR signal passed directly from the matrix location or from a third party control system can provide control of all display devices through the HDBaseT connections.

Insert a compatible IR receiver into the IR input port (IR ALL IN) of the matrix to control all remote devices.

Concealed Matrix Control via IR

When the INT-66HDX is installed in an equipment rack or other concealed location, access to the front panel for normal IR control may be difficult. The *IR EYE* input allows the IR remote to control the matrix.

Insert a compatible IR receiver into the IR input port (IR EYE) of the matrix.

Connect RS232 Control

In addition to traditional RS232 control, the INT-66HDX has an advanced RS232 control mechanism which allows RS232 tunneling and routing through the HDBaseT output port to control remote devices. Intelix recommends using the DIGI-HD60C-R or DIGI-HDX-R for installations which require RS232 extension.

See page 21 for all available control commands for the INT-66HDX.

Matrix Control via RS232

The RS232 control port requires a standard straight-through serial cable for operation. The default settings for the RS232 port are:
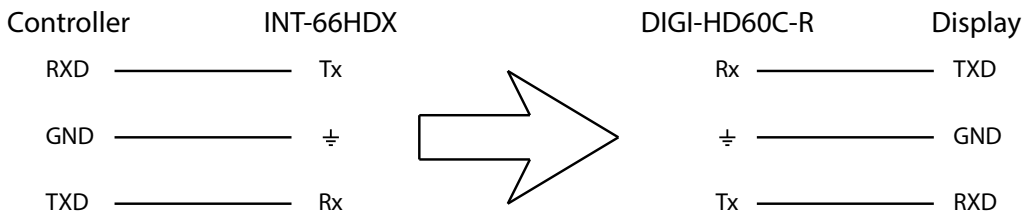
- 9600 baud
- 8 Data Bits
- 1 Stop Bit
- Parity = none

Connect a standard straight-through serial cable with DE9 connector between the RS232 port on the INT-66HDX and the controller.

Remote RS232 Control via Tunneling

Discrete control of remote display devices is possible by connecting an RS232 output of a control system to the 3-pole terminal block on the output of the matrix. A compatible HDBaseT with control receiver is required to pass the control signals to the display devices, such as the DIGI-HD60C-R or DIGI-HDX-R.

To use the RS232 extension capabilities of the INT-66HDX, connect the TX, ground, and RX control signal wires to the removable 3-pole terminal block. 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.

Controller		INT-66HDX		DIGI-HD60C-R		Display
RXD	——————	Tx	⇒	Rx	——————	TXD
GND	——————	÷		÷	——————	GND
TXD	——————	Rx		Tx	——————	RXD

Insert the removable three-pole terminal block into the RS232 tunneling port for the output zone which requires remote RS232 control.

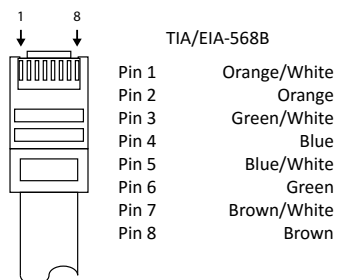### Remote RS232 Control via RS232 Routing

The INT-66HDX has the logic to pass RS232 commands to remote devices through the DE9 RS232 port. If the remote display uses a baud rate other than 9600 baud, please use the RS232 tunneling option in order to receive device status queries.

Please see page 29 for more information on how to program the controller in order to implement this feature in an installation.

Connect TCP/IP (Ethernet) Control

The INT-66HDX may be controlled via Ethernet with a third party control system or through a web browser interface. Additionally, the INT-66HDX has an advanced RS232 control mechanism which will transmit RS232 commands through the HDBaseT output port to control remote devices with a simple command string.

See page 21 for all available control commands for the INT-66HDX.

TIA/EIA-568B	
Pin 1	Orange/White
Pin 2	Orange
Pin 3	Green/White
Pin 4	Blue
Pin 5	Blue/White
Pin 6	Green
Pin 7	Brown/White
Pin 8	Brown

The TCP/IP port requires a standard straight-through Category 5 or greater cable with the TIA/EIA-568B crimp pattern for operation.

The default settings for the TCP/IP port are:
IP address: 192.168.0.178
Port: 8080
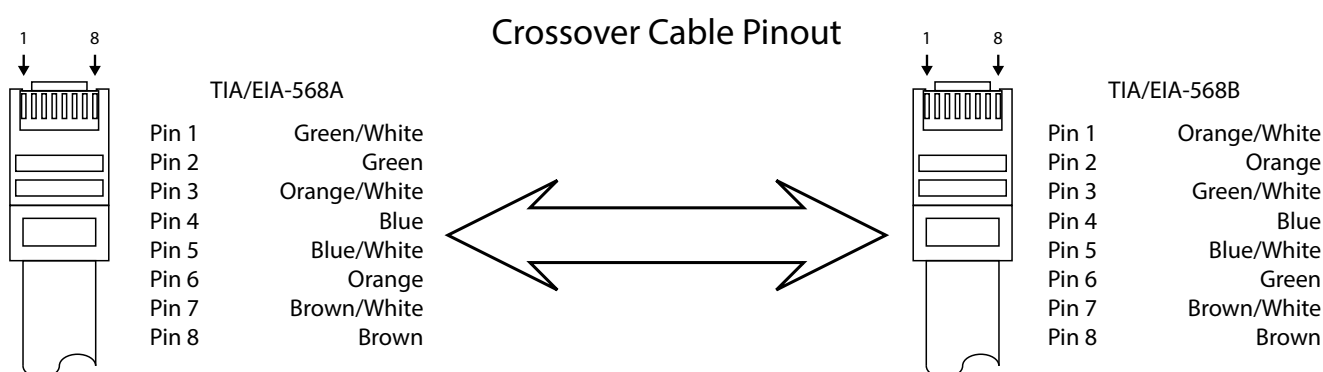
Matrix Control via TCP/IP (Ethernet)

Connect the Ethernet cable between to the matrix and a router with a straight-through cable or between the matrix and a computer with a crossover cable.

Router Connection

1. Configure the router to use the same IP range as the matrix, such as 192.168.0.1.
2. Connect the computer to the router.
3. Connect the INT-66HDX to the router

Crossover Cable Connection

1. Configure the computer to use the same network prefix as the IP address assigned to the matrix. *For example, the IP address of the matrix is 192.168.0.178. Set the computer to use a static IP address within the same network range, such as 192.168.0.42.*
2. Connect the network crossover cable to the computer and to the TCP/IP port on the INT-66HDX.

Crossover Cable Pinout

	TIA/EIA-568A			TIA/EIA-568B
Pin 1	Green/White		Pin 1	Orange/White
Pin 2	Green		Pin 2	Orange
Pin 3	Orange/White		Pin 3	Green/White
Pin 4	Blue		Pin 4	Blue
Pin 5	Blue/White		Pin 5	Blue/White
Pin 6	Orange		Pin 6	Green
Pin 7	Brown/White		Pin 7	Brown/White
Pin 8	Brown		Pin 8	Brown

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Web Browser Control

The INT-66HDX includes a web portal to allow control of the matrix via a standard web browser. The IP address is the same address that is used for TCP/IP control. See page 19 for detailed information regarding the web browser interface, including customization.

Remote RS232 Control via TCP/IP Routing

The INT-66HDX has the logic to pass RS232 commands to remote devices through the TCP/IP port. If the remote display uses a baud rate other than 9600 baud, please use the RS232 tunneling option in order to receive device status queries.

Please see page 29 for more information on how to program the controller in order to implement this feature in an installation.

Apply Power

Connect the IEC power cable into the power input on the rear of the matrix.

Press the power on side (|) of the power switch to apply power.

LCD Panel Boot-up Information

While the matrix is booting up, the front LCD panel will show the IP address of the matrix and the current version of firmware. After five seconds, it will show Intelix INT-66HDX. The backlight will go dark after five seconds.

See page 27 on how to customize the information displayed on the LCD panel.

Basic Front Panel and IR Remote Operation

Basic Routing

Setting a route using the front panel of the matrix will route the input signal to the selected output.

To set a route using the front panel of the INT-66HDX:
1.   Press the desired input button (source).
2.   Press the desired output button (display).
3.   Press the TAKE button. All the selected buttons will flash then go dark indicating a routing change.

Advanced Routing

One to Many Outputs

To route video and audio from input 2 to outputs 1 and 4:
1. Press input 2.
2. Press output 1, then output 4.
3. Press ENTER.

One to All Outputs

To route video and audio from input 3 to all outputs:
1. Press input 3.
2. Press ALL.
3. Press ENTER.

IR Remote Operation

The button functions on the IR remote are identical to the buttons on the front panel of the INT-66HDX. Only input and output numbers 1 through 6 are used on the remote.

The Standby button will send the matrix to a low power state. Pressing the Standby button a second time will restore the INT-66HDX to full power.
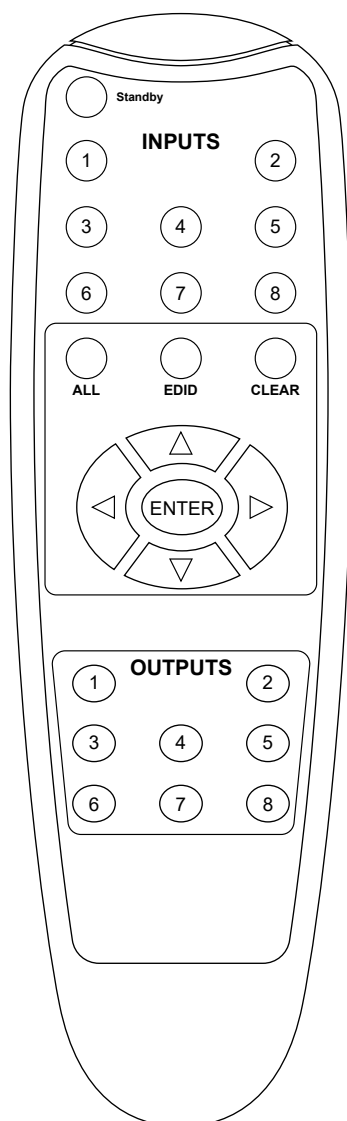
Web Browser Control

User Login


```
                Username: [                    ]

                Password: [                    ]


                     [  Login  ]




                      INT-66HDX
```

Open a web browser and go to the IP address of the INT-66HDX. The default IP address is 192.168.0.178.

Type *user* in the Username field.

Enter the password to gain control of the matrix. The default password is "user".

Press the Enter key on your keyboard or tablet to go to the matrix control screen.

Matrix Routing - User

Click the input to output route and the button will turn green once the route has been changed.

Administrator Login
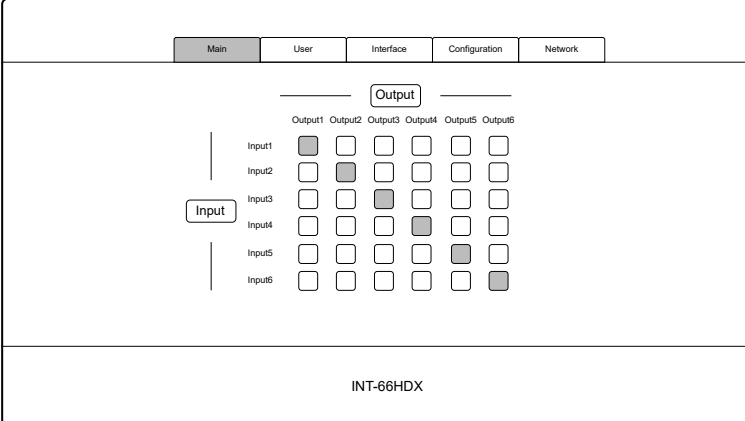
Open a web browser and go to the IP address of the INT-66HDX. The default IP address is 192.168.0.178.

Type *admin* in the Username field.

Enter the password to gain control of the matrix. The default password is "admin".

Press the Enter key on your keyboard or tablet to go to the matrix control screen.

Matrix Routing - Administrator

Click the input to output route and the button will turn green once the route has been changed.

RS232 and TCP/IP Control

RS232 Settings: 9600 baud, 8 Data bits, 1 Stop bit, Parity = None
TCP/IP Settings: User defined IP address (default IP address: 192.168.0.178), port 8080

There is a period (.) at the end of each command. These characters must be present for the command to process correctly. There are no spaces between any of the characters in the command string.

All responses end in a carriage return (hex 0D) and a line feed (hex 0A).

x = Input Number
y = Output Number

Routing Commands

Description	Command	Response
Route input x to audio and video output y	xBy.	xBy
Route input x to all video outputs	xAll.	x To All
Route inputs to corresponding video outputs	All#.	All Through.
Turn off all video outputs	All$.	All Closed.
Turn on all video outputs	All@.	All Open.
Turn off specific video output y	$y$$.	y Closed.
Turn on specific video output y	y@.	y Open.

Examples:

2All.	Route Video and Audio from input 2 to all outputs
4$.	Turn off Video and Audio for output 4
2B3.	Route Video and Audio from input 2 to output 3
3B2,4.	Route Video and Audio from input 3 to outputs 2 and 4

Preset Commands

The INT-66HDX can store up to 10 presets of predetermined video routes.

Description	Command	Response
Save the current routing as a preset. Values range from 0 through 9	Save*x*.	Save to F*x*
Recall preset *x*	Recall*x*.	Recall From F*x*
Clear preset *x*	Clear*x*.	

Examples:

Save4.	Save the current routing as preset 4.
Recall4.	Recall preset 4
Clear4.	Clear preset 4

Power Management

The INT-66HDX features two Standby modes. One Standby mode will leave power on to the HDBaseT ports. The other Standby mode will turn off power to the HDBaseT ports, which will also prevent passing RS232 commands via HDBaseT until the Power on command is transmitted to the INT-66HDX.

Description	Command	Response
Power on	PWON.	PWON
Standby Mode (power on to HDBaseT)	STANDBY.	STANDBY
Standby Mode (power off to HDBaseT)	PWOFF.	PWOFF

Advanced Front Panel and IR Remote Operation

EDID Management

The INT-66HDX has five built-in EDID settings for the inputs, but also allows copying the EDID information of an output device to the input of the matrix.

Copy EDID from Output to Input

To copy the EDID from output 3 to input 1:
1. Press EDID.
2. Press input 1.
3. Press output 3.
4. Press ENTER.

To copy the EDID from output 3 to all inputs:
1. Press EDID.
2. Press ALL.
3. Press output 3.
4. Press ENTER.

Copy EDID from Output to Input

There are six types of built-in EDID data. The chart below illustrates the settings of the built-in EDID data.

No.	EDID Data
1	1080P 2D 2CH (default)
2	1080P 3D 2CH
3	1080P 2D Multichannel
4	1080P 3D Multichannel
5	3840x2160 (UHD) at 30Hz 2CH
6	4096x2160 (4K) at 30Hz 2CH

To enable one of the built-in presets:
1. Press and hold EDID for 3 seconds.
2. Press the input number to change.
3. Press the output number that matches the built-in EDID table to use on the input.
4. Press ENTER to confirm the changes.

System Query

The INT-66HDX can provide basic system information through the front panel LCD. To check the current source going to an output, press and hold the output button for three seconds.

To query the matrix status:
1. Press and hold ENTER for 3 seconds.
2. Press input 3 or 4 (left or right arrow) to cycle through the options.
3. Press CLEAR to exit.

The following table describes each of the screens.

Function	Example	Description
Check the connection status of inputs	`In   01 02 03 04` `Connect  Y Y N N`	Y means the corresponding port is connected to an active input device. N means there is no active connection.
Check the connection status of outputs	`Out  01 02 03 04` `Connect  Y Y N N`	Y means the corresponding port is connected to an active display. N means there is no active connection.
Check the output to input routes	`Out  01 02 03 04` `In   01 02 03 04`	Shows the output to input routes.
Check the HDCP state of the inputs	`In   01 02 03 04` `HDCP     Y Y N N`	Y means the corresponding source is encrypted with HDCP. N means there is no HDCP encryption on the source.
Check the HDCP state of the output video content	`Out  01 02 03 04` `HDCP     Y Y N N`	Y means the output content is encrypted with HDCP. N means the content is not encrypted.
Check the resolution of the content going to a display	`Resolution` `Out 1  1920x1080`	Press the UP and DOWN arrows to cycle through all outputs.

IR Remote Operation

The button functions on the IR remote are identical to the buttons on the front panel of the INT-66HDX. The EDID copy command sequences follow the same procedures as the front panel command sequences.

The Standby button will send the matrix to a low power state. Pressing the Standby button a second time will restore the INT-66HDX to full power.
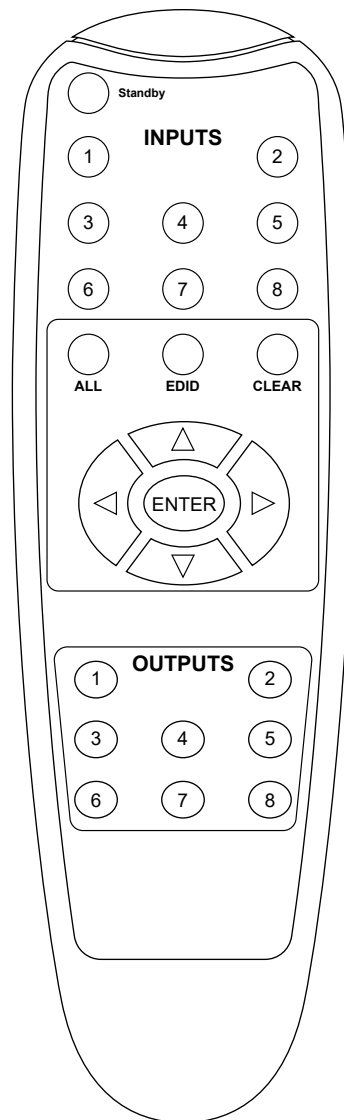
EDID Settings

The default EDID for the inputs of the INT-66HDX is 1080p with stereo audio. In order to change the EDID information for an input, either activate one of the built-in EDID tables or use the EDID copy command functions via front panel, IR, RS232, TCP/IP or through the web browser setup interface (see page 28).

`EDID/x/1.`	Set input x to 1080P 2D 2CH (default)
`EDID/x/2.`	Set input x to 1080P 3D 2CH
`EDID/x/3.`	Set input x to 1080P 2D Multichannel
`EDID/x/4.`	Set input x to 1080P 3D Multichannel
`EDID/x/5.`	Set input x to 3840x2160 (UHD) at 30Hz 2CH
`EDID/x/6.`	Set input x to 4096x2160 (4K) at 30Hz 2CH
`EDIDMyBx.`	Copy video and audio EDID of output y to input x
`EDIDHyBx.`	Copy video EDID of output y and specify 2 channel PCM to input x
`EDIDPCMx.`	Change the audio in the EDID to PCM for input x
`EDIDMInit.`	Restore factory EDID information

Full EDID Copy

To copy the video and audio EDID information from output 3 to input 1, transmit the following command:

```
EDIDM3B1.
```

Hybrid EDID Copy

Hybrid EDID copy is the preferred command to use when the audio is going to be routed to an analog audio output of the matrix. To copy the video EDID information from output 2 and specify two channel PCM audio output to input 4, transmit the following command:

```
EDIDH2B4.
```

Input HDCP Settings

HDCP is enabled on all inputs of the INT-66HDX. If the video output of the matrix is going to a video recorder, video converencing system, or other non-HDCP compliant device, the HDCP input compliance may need to be disabled to ensure the source does not encrypt the non-encrypted content. Showing encrypted content on a non-compliant display will output a black video image. In order to change the HDCP compliance for an input, the HDCP on/off commands will need to be sent to the matrix via RS232 or TCP/IP or managed through the web browser setup interface (see page 28).

`/%I/x:0.`	Turn off HDCP Compliance for input xx
`/%I/x:1.`	Turn on HDCP Compliance for input xx

To turn off HDCP compliance for input 6, transmit the following command:

```
/%I/6:0.
```

Web Browser Configuration

When changes are made on a setup tab, the Save button must be pressed for the changes to take effect.

User Tab

The Users setup screen provides options to change the Administrator and User passwords. The front panel can also be locked to prevent tampering from this screen. This screen also shows the current GUI and hardware revision.

| Main | User | Interface | Configuration | Network |

Credentials:
Admin password: admin
User password: user

Front Panel:
Unlocked ●
Locked ○

Version:
GUI Version: v1.0.0
HW Version: v1.0.0

Save   Cancel

INT-66HDX

Interface Tab

The Interface setup screen features options to customize the end user's experience with the matrix.
» Title Bar Label
  ◊ This changes the title that is shown on the Matrix Control screen.
» LCD Display
  ◊ The LCD panel can be customized with a limit of 16 characters per line.
  ◊ Apostrophe ('), comma (,), and backslash (\) are not supported characters.
» Button Labels
  ◊ Input and output labels can be changed to make routing signals easier for the end user.

| Main | User | Interface | Configuration | Network |

Title Bar Label: INT-66HDX

LCD Display: HDBaseT Matrix
INT-66HDX

Button Labels:
Inputs
1 Input1 4 Input4
2 Input2 5 Input5
3 Input3 6 Input6

Outputs
1 Output1 4 Output4
2 Output2 5 Output5
3 Output3 6 Output6

Save   Cancel

INT-66HDX

HDCP and EDID Configuration Tab

The Configuration setup screen has options to turn on and off the HDCP compliance flag for an input, select the audio input source for inputs 1 and 2, enable or disable the digital audio output, and copy the EDID from an output to an input. For more information on HDCP compliance, please see page 26.

» HDCP Compliance
  ◊ Turns on or off HDCP compliance for each input.
» EDID copy
  ◊ Copies the EDID from an output to one or all inputs based on dropdown selection.
  ◊ After the EDID copy options are selected, click the Go! button.

Network Tab (IP Address)

The Network setup screen features DHCP or Static IP settings for the matrix.

RS232 and TCP/IP Configuration

Front Panel Lock

The front panel lock prevents digital video switching from being activated via the front panel.

Description	Command	Response
Lock the front panel keys	/%Lock;	System Locked!
Unlock the front panel keys	/%Unlock;	System Unlock!

HDBaseT and HDMI Audio Output

Turn on and off the audio feed going to the HDMI and HDBaseT outputs. Disabling the digital audio feed on outputs 1 and 2 affect the HDBaseT and HDMI outputs. Values for y correspond to outputs 1 through 6, 7 is for all outputs.

Description	Command	Response
Turn on HDMI audio for output y	DigitAudioONy.	DigitAudio ON with Output y
Turn off HDMI audio for output y	DigitAudioOFFy.	DigitAudio OFF with Output y

Messaging via HDBaseT

Matrix switching commands and responses may be transmitted to the RS232 ports of the HDBaseT connected devices. When this option is disabled, only device on and off commands will pass to the HDBaseT ports.

Description	Command	Response
Turn off matrix command feedback	/:MessageOff;	/:MessageOff;
Turn on matrix command feedback	/:MessageOn;	/:MessageOn;

Immediate RS232 Routing to HDBaseT

The INT-66HDX has the logic to pass RS232 commands to remote devices through the TCP/IP or DE9 RS232 ports. The destination command string is embedded in a command which includes the destination HDBaseT port and baud rate. This is a bidirectional communication method. The maximum string length is 48 bytes (characters).

The format of the RS232 routing string is: /+<Y>/<B>:<$>. (The period at the end of the string is required.) <Y> is the HDBaseT port code, <B> is the baud rate, and <$> is the RS232 string.

HDBaseT Port	Port Code		Baud	Baud Code
Output 1	1		2400	1
Output 2	2		4800	2
Output 3	3		9600	3
Output 4	4		19200	4
Output 5	5		38400	5
Output 6	6		57600	6
ALL	9		115200	7

Example:

/+3/4:GoToInput1.	Send the string GoToInput1 to output 3 at 19200 baud

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Power On RS232 Routing to HDBaseT

In addition to immediate transmission, the INT-66HDX can store commands to be broadcast when the matrix is powered on through the standby commands (`PWON.`, `STANBY.`, and `PWOFF.`).

The format of the RS232 routing string is: `/+<Y>/<B>:<$>.` (The period at the end of the string is required.) `<Y>` is the output code, `<B>` is the baud rate, and `<$>` is the RS232 string. Output codes and baud rate codes are in the tables below.

HDBaseT Port	Port Code
Output 1	A
Output 2	B
Output 3	C
Output 4	D
Output 5	E
Output 6	F

Baud	Baud Code
2400	1
4800	2
9600	3
19200	4
38400	5
57600	6
115200	7

Power Off RS232 Routing to HDBaseT

In addition to immediate transmission, the INT-66HDX can store commands to be broadcast when the matrix is powered off through the standby commands (`PWON.`, `STANBY.`, and `PWOFF.`).

The format of the RS232 routing string is: `/+<Y>/<B>:<$>.` (The period at the end of the string is required.) `<Y>` is the output code, `<B>` is the baud rate, and `<$>` is the RS232 string. Output codes and baud rate codes are in the tables below.

HDBaseT Port	Port Code
Output 1	G
Output 2	H
Output 3	I
Output 4	J
Output 5	K
Output 6	L

Baud	Baud Code
2400	1
4800	2
9600	3
19200	4
38400	5
57600	6
115200	7

Factory Reset

The factory reset command will reset every setting to the factory defaults. EDID, HDCP, routing, presets, IP address, web GUI customization, and more will all be reset to the original settings. Use extreme caution when the matrix is used in a live environment.

Description	Command	Response
Factory Reset	`%0911.`	`Factory Default`

RS232 and TCP/IP System Query

Routing Queries

Description	Command	Response
Output y routing status (only 1 digit)	`Status`$y`.	`AV:    x-> y`

Routing status of all outputs.	`Status.`	`AV:   1-> 1`
		`AV:   2-> 2`
		`AV:   3-> 3`
		`AV:   4-> 4`
		`AV:   5-> 5`
		`AV:   6-> 6`

Signal Status Queries

Description	Command	Response

Get input connection status	`%9971.`	`In      1 2 3 4`
		`Connect  N Y Y Y`
		`In      5 6`
		`Connect  N Y`

Get input device HDCP status	`%9973.`	`In      1 2 3 4`
		`HDCP     N N Y Y`
		`In      5 6`
		`HDCP     N N`

Get output connection status	`%9972.`	`Out     1 2 3 4`
		`Connect  N Y Y Y`
		`Out     5 6`
		`Connect  N Y`

Get output HDCP connection status	`%9974.`	`Out     1 2 3 4`
		`HDCP     N N Y Y`
		`Out     5 6`
		`HDCP     N N`

Get input to output connection status	`%9975.`	`Out     1 2 3 4`
		`In      1 2 3 4`
		`Out     5 6`
		`In      5 6`

Get active output resolutions	`%9976.`	`Resolution`
		`Out 1  1920x1080`
		`Out 2  1920x1080`
		`Out 3  0000x0000`
		`Out 4  0000x0000`
		`Out 5  0000x0000`
		`Out 6  0000x0000`

Get output digital audio state	`%9977.`	`Out     1 2 3 4`
		`Audio   Y Y Y Y`
		`Out     5 6`
		`Audio   Y Y`

Get HDCP enabled list	`%9978.`	`In      1 2 3 4`
		`HDCPEN  Y Y Y Y`
		`In      5 6`
		`HDCPEN  Y Y`

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Matrix Status Queries

Description	Command	Response
Get model number	`/*Type;`	`INT-66HDX`
Check the software version	`/^Version;`	`V1.0.0`
Query system lock state	`%9961.`	`System Locked!` *or* `System Unlock!`
Query standby state	`%9962.`	`PWON` *or* `STANDBY` *or* `PWOFF`
Query the IP address	`%9964.`	`IP:192.168.0.178`

Display Control Queries

If there are no PWON or PWOFF commands defined for an HDBaseT port, the response string will be: `Port #: NO Data` for the single command queries and `Port # : NO Data when PWON` or `Port # : NO Data when PWOFF` for the Get All query.

Description	Command	Response
Get input 1 PWON command	`%9951.`	`Port 1:<code> when PWON`
Get input 2 PWON command	`%9952.`	`Port 2:<code> when PWON`
Get input 3 PWON command	`%9953.`	`Port 3:<code> when PWON`
Get input 4 PWON command	`%9954.`	`Port 4:<code> when PWON`
Get input 5 PWON command	`%9955.`	`Port 5:<code> when PWON`
Get input 6 PWON command	`%9956.`	`Port 6:<code> when PWON`
Get input 1 PWOFF command	`%9941.`	`Port 1:<code> when PWOFF`
Get input 2 PWOFF command	`%9942.`	`Port 2:<code> when PWOFF`
Get input 3 PWOFF command	`%9943.`	`Port 3:<code> when PWOFF`
Get input 4 PWOFF command	`%9944.`	`Port 4:<code> when PWOFF`
Get input 3 PWOFF command	`%9945.`	`Port 5:<code> when PWOFF`
Get input 4 PWOFF command	`%9946.`	`Port 6:<code> when PWOFF`

Troubleshooting

Matrix does not power on

» Verify power outlet is active.
» Verify continuity in power cable.

Cannot view 4K (UHD) content

» Copy EDID from output to input.
» Verify display is 4K (UHD) compatible.
» Verify source device can output 4K (UHD) content.

Cannot hear surround sound audio

» Copy EDID from output to input.
» Verify output can broadcast surround sound audio.
» Verify source device is configured to output surround sound audio.

No video from HDBaseT output

» Verify the amber link LED on the HDBaseT output is lit solid.
» Verify video output is not disabled.

Technical Specifications

Input/Output Connections	
HDMI Inputs	Six (6) HDMI Type A Receptacle
IR Outputs	Six (6) 3.5mm TRS
HDMI Outputs (Outputs 1, 2 and 3 only)	Three (3) HDMI Type A Receptacle
HDBaseT Outputs	Six (6) 8P8C Port (Shielded RJ45 Female)
Analog Audio Outputs	Six (6) 3-Pole/3.5mm Euroblock
RS232 Tunnel	Six (6) 3-Pole/3.5mm Euroblock
IR All In	One (1) 3.5mm TRS
IR Eye	One (1) 3.5mm TRS
TCP/IP	One (1) 8P8C Port (Shielded RJ45 Female)
RS232	One (1) DE9 Port Female
Power	One (1) IEC C14
Supported Audio, Video, and Embedded Control	
Video Resolutions	SMPTE: 480i, 480p, 576i, 576p, 720p, 1080i, 1080p, UHD/30 (HDMI only) Color Depth: 24, 30, 36, 48bit
Maximum Video Compatibility at 100 m	Deep Color 48 Bit at 1080p and 3D, UHD/30
Maximum Passive HDMI Cable Distance	5 m (16.4 ft)
Video Compliance	HDMI 1.4, HDCP 1.4 and HDCP 2.2
Embedded Audio	Up to PCM 8 channel, Dolby Digital TrueHD, and DTS-HD Master Audio
Analog Audio Pinout	Left, Ground, Right
Embedded RS232 Baud Rate	2400, 4800, 9600, 19200, 38400, and 115200 baud
IR Carrier Frequency Range	33-55kHz at 5 volts
HDBaseT Signal Characteristics	
Maximum Distance	100 m (328ft)
Cable Requirements	Continuous solid core Category 5e or greater with TIA/EIA-568B crimp pattern (no couplers in-line)
Bandwidth	10.2 Gbps
HDBaseT Chipset	VS100TX
Device Control Parameters	
IR Carrier Frequency Range	33-55kHz at 5 volts
Ethernet	100BaseT
RS232 Baud Rate	9600 baud
Chassis and Environmental	
Enclosure	Painted Aluminum
Dimensions (H x W x D)	88 mm x 437 mm x 380 mm (3.46 in x 17.20 in x 14.96 in) – 2 RU
Shipping Weight	7.25 kg (16 lbs.)
Operating Temperature	0° to +48° C (+32° to +120° F)
Operating Humidity	10% to 90%, Non-condensing
Storage Temperature	-20° to +70° C (+14° to +158° F)
Storage Humidity	10% to 85%, Non-condensing
Power, ESD, and Regulatory	
Power Supply	100V-240VAC / 50-60 Hz
Power over Ethernet (PoE) Compatibility	802.3af Alternative A, 15 watts per port, 48V available at remote device
Power Consumption	105 watts (max)
ESD Protection	15kV air, 8kV contact
Product Regulatory	UL, FCC, CE, RoHS
Other	
Standard Warranty	2 years
Diagnostic Indicators	Power LED, System LCD
Included Accessories	Installation Guide, IR Remote with AAA Batteries, IR Eye, Rack Mounting Ears with Screws, Chassis Feet with Screws, US Power Cable, Straight-Through DE9 Male to Female RS232 Cable, Twelve (12) 3-pole Removable Terminal Blocks
Compatible Receivers (AV and Power)	DIGI-HD60-R (70m)
Compatible Receivers (AV, Control, and Power)	DIGI-HD60C-R (70m), DIGI-HDX-R (100m), INT-HD70-RX (70m), INT-HDX100-RX (100m)
Compatible Receivers (AV and Control)	DIGI-BSR-4K (100m)

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

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