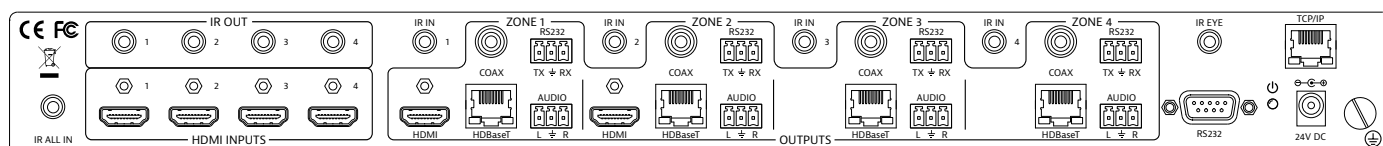
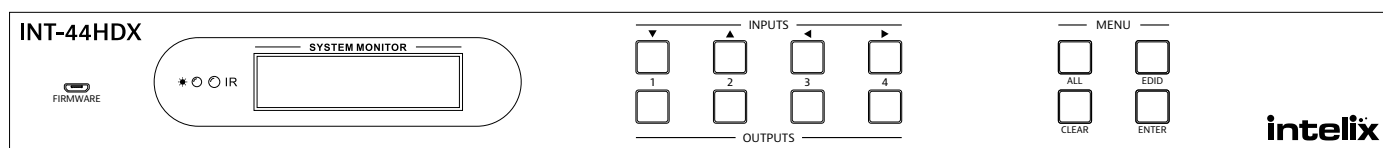


# INT-44HDX Installation and Operation Guide



# 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 lightning 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.



 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-44HDX is a four input by four output HDBaseT/HDMI matrix switcher with HDCP 2.2 and UHD/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-44HDX features HDBaseT twisted pair extension for each output, and simultaneous HDMI on the first two 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 UHD/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-44HDX 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.

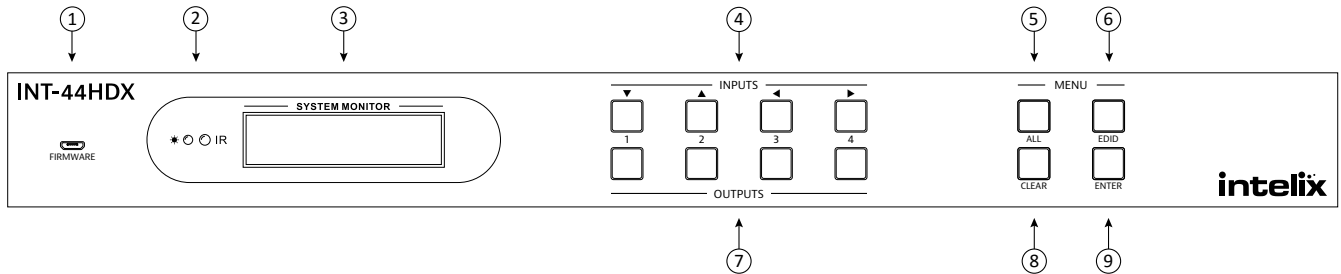
## Package Contents

Please verify the following items are in the shipping box prior to installation of the INT-44HDX.

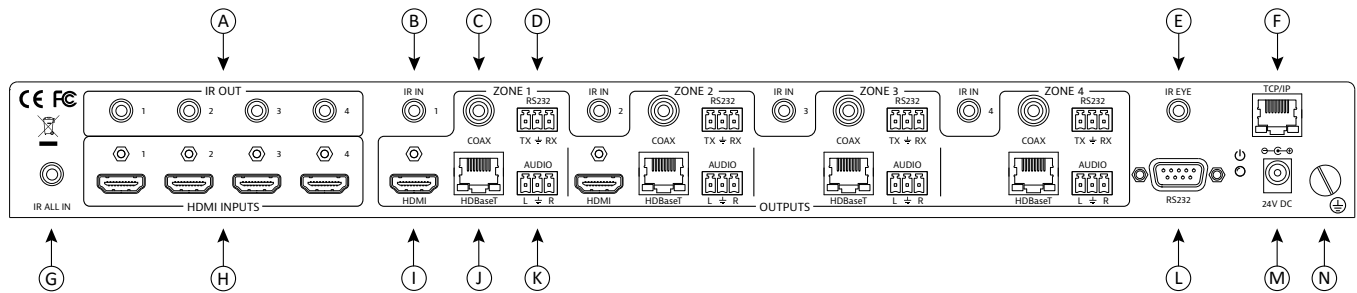
- INT-44HDX Matrix Switcher
- Rack Ears with Screws - 2 ea
- Shelf Feet with Screws - 4 ea
- US Power Cable
- Power Supply
- RS232 Cable
- Removable 3-pole Terminal Blocks (installed on matrix) - 8ea
- Infrared Receiver
- Infrared Remote Control
- AAA Batteries - 2 ea

# Front and Rear Panels

## Front Panel



1. Micro USB port for firmware updating
2. Power indicator LED; IR receiver for matrix control via IR remote
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. Output select buttons
8. Clear button – cancels current routing selection before change is applied
9. Enter button – confirms route changes and applies new route; enter status menu

**Rear Panel**

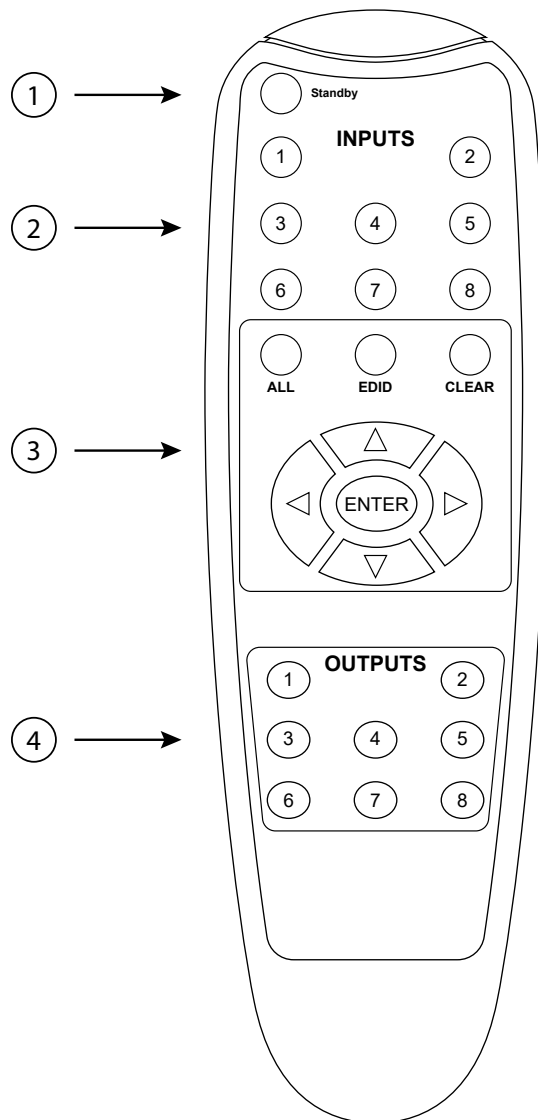
- A. IR output ports for each source device
- B. IR input ports for each HDBaseT output
- C. Coaxial digital audio output ports
- D. RS232 input for each HDBaseT output
- E. IR input for matrix when front is covered or matrix is located in a concealed location (IR EYE)
- F. TCP/IP (Ethernet) control input; also allows control via web browser
- G. IR input to send IR commands to all remote HDBaseT devices simultaneously (IR ALL IN)
- H. HDMI inputs
- I. HDMI outputs (1 and 2 only)
- J. HDBaseT outputs with PoH support
- K. Unbalanced analog audio output ports
- L. RS232 control input
- M. 24V DC power input
- N. Ground screw



## IR Remote

The included IR remote performs all of the functions available on the front panel of the INT-44HDX. Please see page 17 for information on controlling the matrix from the front panel and the IR remote.

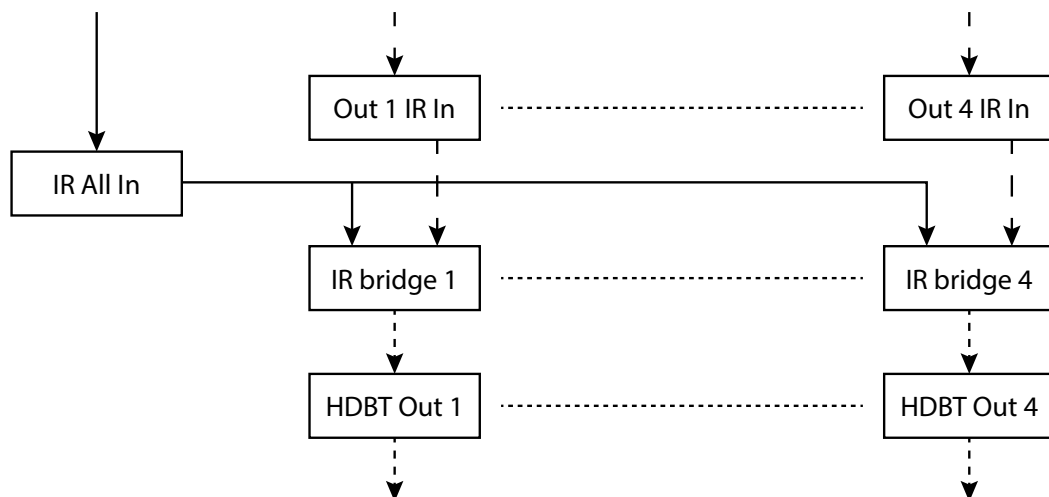
The remote control requires two AAA batteries, which are included.



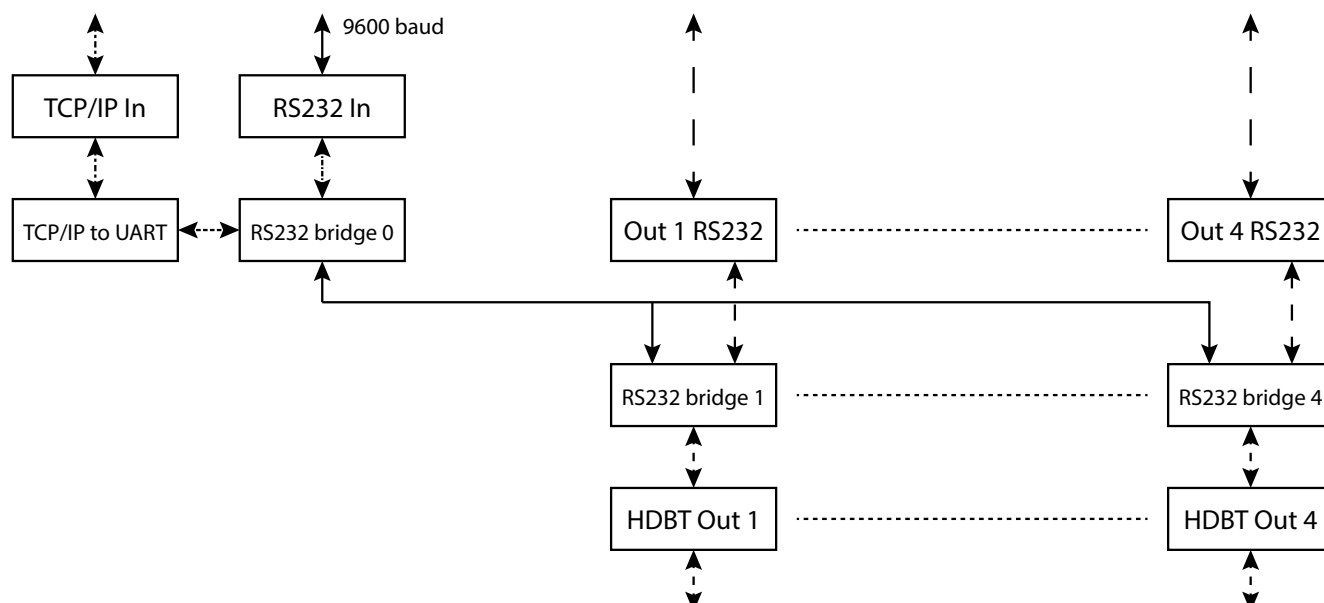
1. Standby button
2. Input selection buttons
3. Function buttons
4. Output selection buttons

## Control Routing Diagrams

### IR Routing



### RS232 and TCP/IP to RS232 Routing



# 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-44HDX for proper side ventilation. Avoid mounting the INT-44HDX 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-44HDX matrix.

### Rack Mounting Instructions

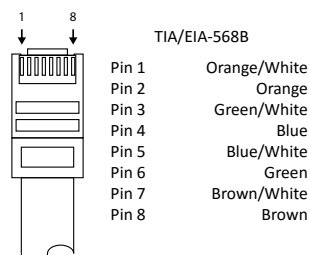
Attach the supplied rack ears to the sides of the INT-44HDX matrix with the supplied screws. The matrix requires one rack unit (1 RU) of space. It is recommended that you leave an empty rack space above and below the INT-44HDX for additional cooling.

## 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.



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-44HDX.

## 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

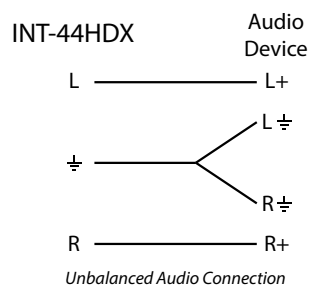
### HDMI Outputs

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



### Unbalanced Audio Wiring

Using the included removable 3-pole terminal blocks, make a cable to interface between the audio device and the INT-44HDX 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-44HDX.

## ***Connect IR Control***

The INT-44HDX 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-44HDX4. The IR adapter cables allow third party controllers to connect directly to the IR input ports of the INT-44HDX. If additional IR receivers are required, the DIGIB-EYE is a compatible substitute. Third party 12V DC IR components are not compatible with the INT-44HDX.

### ***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-44HDX 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-44HDX 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-44HDX.

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:

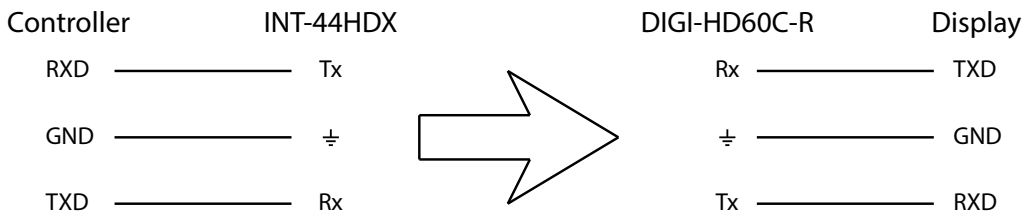
- 9600 baud
- 8 Data Bits
- 1 Stop Bit
- Parity = none

Connect a standard straight-through serial cable with DE9 connector between the RS232 port on the INT-44HDX 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-44HDX, 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.



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

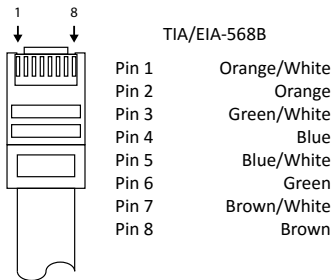
The INT-44HDX has the logic to pass RS232 commands to remote devices through the DE9 RS232 port. If the remote display uses a baud rate other than 9600 baud, please use the RS232 tunneling option in order to receive device status queries.

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-44HDX may be controlled via Ethernet with a third party control system or through a web browser interface. Additionally, the INT-44HDX 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-44HDX.



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)

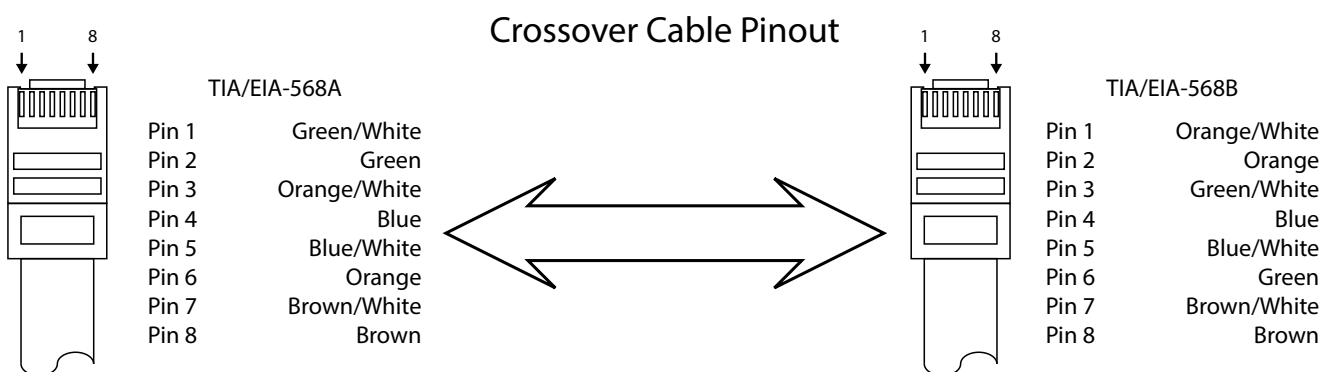
Connect the Ethernet cable between to the matrix and a router with a straight-through cable or between the matrix and a computer with a crossover cable.

### 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-44HDX 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-44HDX.



### *Web Browser Control*

The INT-44HDX 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-44HDX 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***

Plug the power supply into the power input port on the rear of the matrix.

Connect the IEC power cable into the power supply. The matrix will turn on once the IEC cable is plugged into AC 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-44HDX. 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-44HDX:

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*

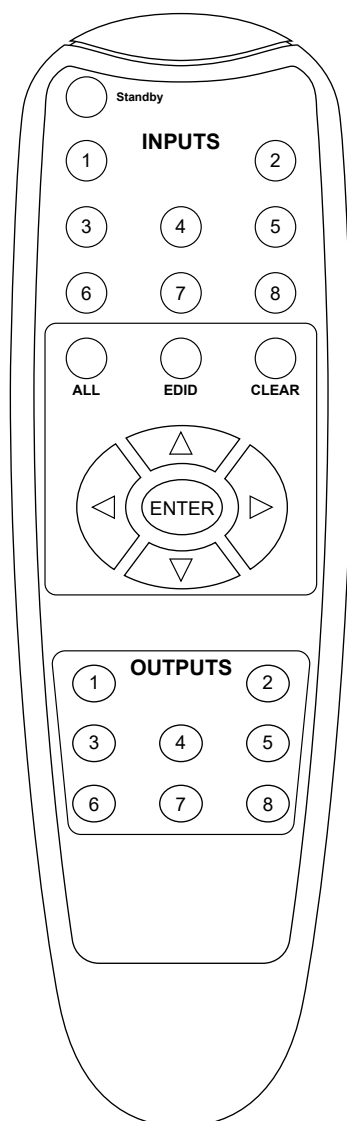
To route video and audio from input 3 to all outputs:

1. Press input 3.
2. Press ALL.
3. Press ENTER.

## ***IR Remote Operation***

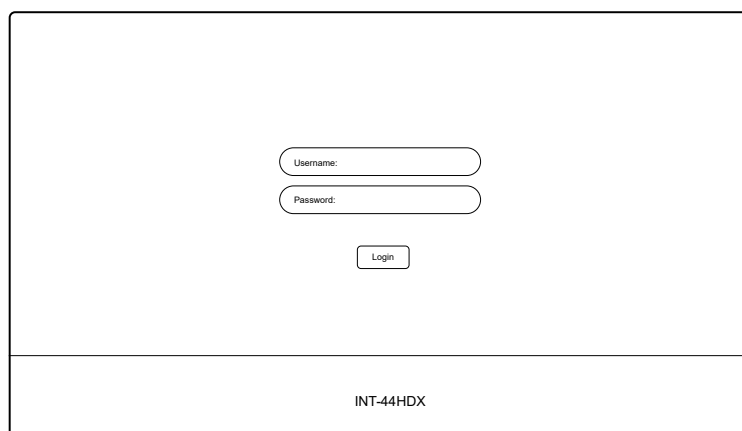
The button functions on the IR remote are identical to the buttons on the front panel of the INT-44HDX. Only input and output numbers 1 through 4 are used on the remote.

The Standby button will send the matrix to a low power state. Pressing the Standby button a second time will restore the INT-44HDX to full power.



# Web Browser Control

## User Login



The User Login screen features a central form with two input fields: 'Username:' and 'Password:'. Below these fields is a 'Login' button. The entire form is enclosed in a rectangular border. At the bottom of the screen, the text 'INT-44HDX' is displayed.

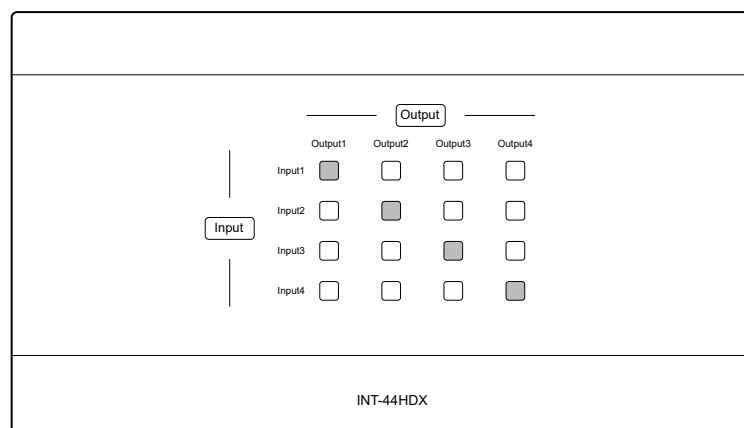
Open a web browser and go to the IP address of the INT-44HDX. The default IP address is 192.168.0.178.

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.

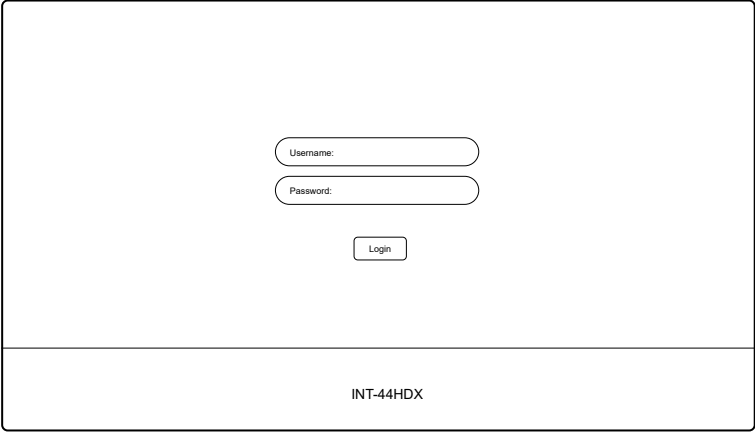
## Matrix Routing - User



The Matrix Routing - User screen displays a 4x4 grid of buttons. The columns are labeled 'Output1', 'Output2', 'Output3', and 'Output4' at the top. The rows are labeled 'Input1', 'Input2', 'Input3', and 'Input4' on the left. A vertical line separates the 'Input' labels from the grid. A horizontal line separates the 'Output' labels from the grid. The 'Input' label is in a box, and the 'Output' label is in a box. The grid contains 16 buttons. The button at the intersection of Input1 and Output2 is shaded gray. The button at the intersection of Input2 and Output3 is shaded gray. The button at the intersection of Input3 and Output4 is shaded gray. The button at the intersection of Input4 and Output1 is shaded gray. The text 'INT-44HDX' is displayed at the bottom of the screen.

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

## Administrator Login



The login screen features a central area with two input fields: 'Username:' and 'Password:'. Below these fields is a 'Login' button. The entire interface is enclosed in a rectangular frame with a footer bar at the bottom containing the text 'INT-44HDX'.

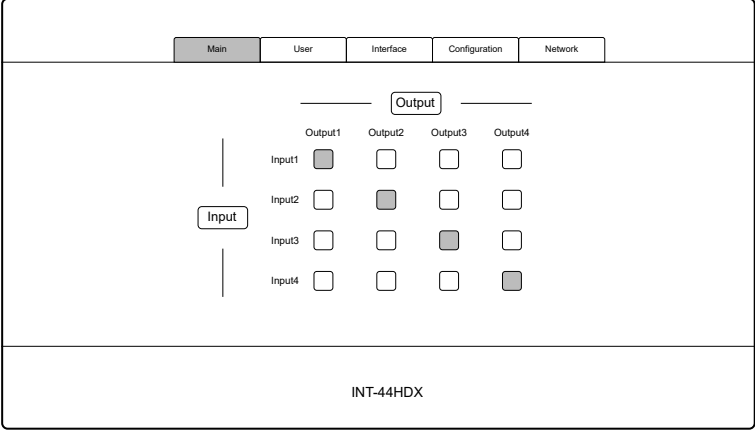
Open a web browser and go to the IP address of the INT-44HDX. The default IP address is 192.168.0.178.

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



The Matrix Routing screen displays a navigation bar at the top with tabs: 'Main' (selected), 'User', 'Interface', 'Configuration', and 'Network'. Below the navigation bar is a control panel. On the left, there is an 'Input' button. On the right, there is an 'Output' button. In the center, there is a 4x4 grid of buttons labeled Input1 through Input4 (rows) and Output1 through Output4 (columns). The Input1-Output1 button is currently selected and highlighted in grey. The entire interface is enclosed in a rectangular frame with a footer bar at the bottom containing the text 'INT-44HDX'.

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-44HDX 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-44HDX 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-44HDX.

| 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-44HDX 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 five 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 |

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 output 1 or output 2 to cycle through the built-in EDID tables.
4. Press ENTER to confirm the changes.

## System Query

The INT-44HDX 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.

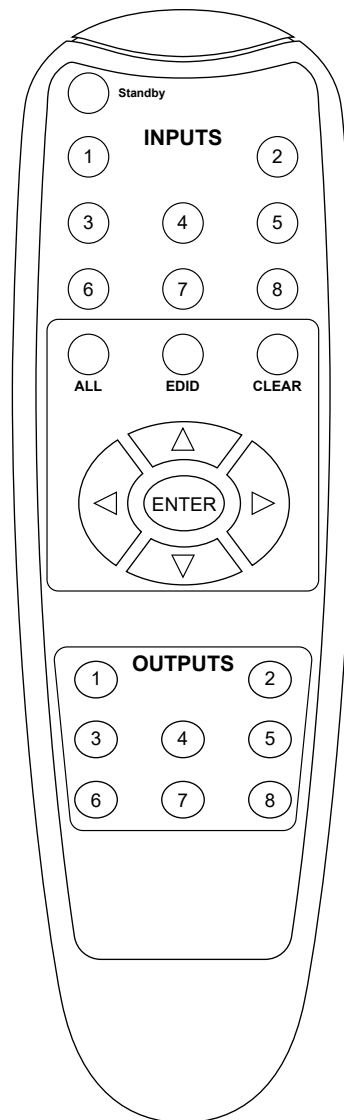
| Function                                               | Example                                                | Description                                                                                                   |
|--------------------------------------------------------|--------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| Check the connection status of inputs                  | <div> In    01 02 03 04<br/> Connect   Y Y N N </div>  | 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                 | <div> Out   01 02 03 04<br/> Connect   Y Y N N </div>  | Y means the corresponding port is connected to an active display. N means there is no active connection.      |
| Check the output to input routes                       | <div> Out   01 02 03 04<br/> In    01 02 03 04 </div>  | Shows the output to input routes.                                                                             |
| Check the HDCP state of the inputs                     | <div> In    01 02 03 04<br/> HDCP       Y Y N N </div> | 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       | <div> Out   01 02 03 04<br/> HDCP       Y Y N N </div> | 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 | <div> Resolution<br/> Out 1   1920x1080 </div>         | 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-44HDX. 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-44HDX to full power.



## EDID Settings

The default EDID for the inputs of the INT-44HDX 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/ <i>x</i> /1. | Set input <i>x</i> to 1080P 2D 2CH (default)                                   |
| EDID/ <i>x</i> /2. | Set input <i>x</i> to 1080P 3D 2CH                                             |
| EDID/ <i>x</i> /3. | Set input <i>x</i> to 1080P 2D Multichannel                                    |
| EDID/ <i>x</i> /4. | Set input <i>x</i> to 1080P 3D Multichannel                                    |
| EDID/ <i>x</i> /5. | Set input <i>x</i> to 3840x2160 (UHD) at 30Hz 2CH                              |
| EDIDM <i>yBx</i> . | Copy video and audio EDID of output <i>y</i> to input <i>x</i>                 |
| EDIDH <i>yBx</i> . | Copy video EDID of output <i>y</i> and specify 2 channel PCM to input <i>x</i> |
| EDIDPCM <i>x</i> . | Change the audio in the EDID to PCM for input <i>x</i>                         |
| 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-44HDX. If the video output of the matrix is going to a video recorder, video conferencing 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 / <i>x</i> : 0. | Turn off HDCP Compliance for input <i>xx</i> |
| / %I / <i>x</i> : 1. | Turn on HDCP Compliance for input <i>xx</i>  |

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.

## 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.

## 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.

The screenshot shows the 'Configuration' tab selected in the top navigation bar. The main content area is titled 'HDCP Compliance:' and contains four input controls: 'Input 1' (On/Off), 'Input 2' (On/Off), 'Input 3' (On/Off), and 'Input 4' (On/Off). Below this is the 'EDID Copy:' section, which includes a dropdown menu for 'Inputs', a dropdown for 'Outputs', and a 'Go!' button. At the bottom of the configuration area are 'Save' and 'Cancel' buttons. The footer of the page displays 'INT-44HDX'.

## Network Tab (IP Address)

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

The screenshot shows the 'Network' tab selected in the top navigation bar. The main content area is titled 'Network Settings:' and displays the following information: 'MAC Address: 01:23:45:67:89:AB', 'DHCP' (radio button), 'Static IP' (radio button), 'IP Address: 192.168.0.178', 'Subnet Mask: 255.255.255.0', and 'Gateway: 192.168.0.1'. Below the settings are 'Save' and 'Cancel' buttons. The footer of the page displays 'INT-44HDX'.

# 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   | <code>/ %Lock;</code>   | System Locked! |
| Unlock the front panel keys | <code>/ %Unlock;</code> | 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 4, 5 is for all outputs.

| Description                             | Command                      | Response                            |
|-----------------------------------------|------------------------------|-------------------------------------|
| Turn on HDMI audio for output <i>y</i>  | <code>DigitAudioONy.</code>  | DigitAudio ON with Output <i>y</i>  |
| Turn off HDMI audio for output <i>y</i> | <code>DigitAudioOFFy.</code> | DigitAudio OFF with Output <i>y</i> |

## 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 | <code>/ :MessageOff;</code> | <code>/ :MessageOff;</code> |
| Turn on matrix command feedback  | <code>/ :MessageOn;</code>  | <code>/ :MessageOn;</code>  |

## Immediate RS232 Routing to HDBaseT

The INT-44HDX 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         |
| ALL          | 5         | 38400  | 5         |
|              |           | 57600  | 6         |
|              |           | 115200 | 7         |

Example:

|                                |                                                                   |
|--------------------------------|-------------------------------------------------------------------|
| <code>/+3/4:GoToInput1.</code> | Send the string <code>GoToInput1</code> to output 3 at 19200 baud |
|--------------------------------|-------------------------------------------------------------------|

### ***Power On RS232 Routing to HDBaseT***

In addition to immediate transmission, the INT-44HDX 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 | Baud   | Baud Code |
|--------------|-----------|--------|-----------|
| Output 1     | A         | 2400   | 1         |
| Output 2     | B         | 4800   | 2         |
| Output 3     | C         | 9600   | 3         |
| Output 4     | D         | 19200  | 4         |
|              |           | 38400  | 5         |
|              |           | 57600  | 6         |
|              |           | 115200 | 7         |

### ***Power Off RS232 Routing to HDBaseT***

In addition to immediate transmission, the INT-44HDX 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 | Baud   | Baud Code |
|--------------|-----------|--------|-----------|
| Output 1     | E         | 2400   | 1         |
| Output 2     | F         | 4800   | 2         |
| Output 3     | G         | 9600   | 3         |
| Output 4     | H         | 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 | <code>%0911.</code> | Factory Default |

## RS232 and TCP/IP System Query

### Routing Queries

| Description                                   | Command           | Response                                         |
|-----------------------------------------------|-------------------|--------------------------------------------------|
| Output <i>y</i> routing status (only 1 digit) | Status <i>y</i> . | AV: <i>x</i> -> <i>y</i>                         |
| Routing status of all outputs.                | Status.           | AV: 1-> 1<br>AV: 2-> 2<br>AV: 3-> 3<br>AV: 4-> 4 |

### Signal Status Queries

| Description                           | Command | Response                                                                               |
|---------------------------------------|---------|----------------------------------------------------------------------------------------|
| Get input connection status           | %9971.  | In 1 2 3 4<br>Connect Y N N Y                                                          |
| Get input device HDCP status          | %9973.  | In 1 2 3 4<br>HDCP Y N N N                                                             |
| Get output connection status          | %9972.  | Out 1 2 3 4<br>Connect Y Y N N                                                         |
| Get output HDCP connection status     | %9974.  | Out 1 2 3 4<br>HDCP N N N N                                                            |
| Get input to output connection status | %9975.  | Out 01 02 03 04<br>In 04 04 04 04                                                      |
| Get active output resolutions         | %9976.  | Resolution<br>Out 1 1920x1080<br>Out 2 1920x1080<br>Out 3 0000x0000<br>Out 4 0000x0000 |
| Get output digital audio state        | %9977.  | Out 1 2 3 4<br>Audio Y Y Y Y                                                           |
| Get HDCP enabled list                 | %9978.  | In 1 2 3 4<br>HDCPEN Y Y Y Y                                                           |

### **Matrix Status Queries**

| Description                | Command                 | Response                                     |
|----------------------------|-------------------------|----------------------------------------------|
| Get model number           | <code>/*Type;</code>    | INT-44HDX                                    |
| Check the software version | <code>/^Version;</code> | V1.0.0                                       |
| Query system lock state    | <code>%9961.</code>     | System Locked! <i>or</i><br>System Unlock!   |
| Query standby state        | <code>%9962.</code>     | PWON <i>or</i><br>STANDBY <i>or</i><br>PWOFF |
| Query the IP address       | <code>%9964.</code>     | 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  | <code>%9951.</code> | Port 1:<code> when PWON  |
| Get input 2 PWON command  | <code>%9952.</code> | Port 2:<code> when PWON  |
| Get input 3 PWON command  | <code>%9953.</code> | Port 3:<code> when PWON  |
| Get input 4 PWON command  | <code>%9954.</code> | Port 4:<code> when PWON  |
| Get input 1 PWOFF command | <code>%9955.</code> | Port 1:<code> when PWOFF |
| Get input 2 PWOFF command | <code>%9956.</code> | Port 2:<code> when PWOFF |
| Get input 3 PWOFF command | <code>%9957.</code> | Port 3:<code> when PWOFF |
| Get input 4 PWOFF command | <code>%9958.</code> | Port 4:<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

|                                                     |                                                                                                                                                                                                                                               |
|-----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Input/Output Connections</b>                     |                                                                                                                                                                                                                                               |
| HDMI Inputs                                         | Four (4) HDMI Type A Receptacle                                                                                                                                                                                                               |
| IR Outputs                                          | Four (4) 3.5mm TRS                                                                                                                                                                                                                            |
| HDMI Outputs (Outputs 1 and 2 only)                 | Two (2) HDMI Type A Receptacle                                                                                                                                                                                                                |
| HDBaseT Outputs                                     | Four (4) 8P8C Port (Shielded RJ45 Female)                                                                                                                                                                                                     |
| Digital Audio Outputs                               | Four (4) RCA Connectors                                                                                                                                                                                                                       |
| Analog Audio Outputs                                | Four (4) 3-Pole/3.5mm Euroblock                                                                                                                                                                                                               |
| RS232 Tunnel                                        | Four (4) 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) 5.5 mm OD, 2.6 mm ID Threaded Barrel                                                                                                                                                                                                  |
| <b>Supported Audio, Video, and Embedded Control</b> |                                                                                                                                                                                                                                               |
| Video Resolutions                                   | SMPTE: 480i, 480p, 576i, 576p, 720p, 1080i, 1080p, UHD/30 (HDMI only)<br>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                                                                                                                                                                                                                           |
| <b>HDBaseT Signal Characteristics</b>               |                                                                                                                                                                                                                                               |
| 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                                                                                                                                                                                                                                       |
| <b>Device Control Parameters</b>                    |                                                                                                                                                                                                                                               |
| IR Carrier Frequency Range                          | 33-55kHz at 5 volts                                                                                                                                                                                                                           |
| Ethernet                                            | 100BaseT                                                                                                                                                                                                                                      |
| RS232 Baud Rate                                     | 9600 baud                                                                                                                                                                                                                                     |
| <b>Chassis and Environmental</b>                    |                                                                                                                                                                                                                                               |
| Enclosure                                           | Painted Aluminum                                                                                                                                                                                                                              |
| Dimensions (H x W x D)                              | 44 mm x 437 mm x 235 mm (1.73 in x 17.20 in x 9.25 in) – 1 RU                                                                                                                                                                                 |
| Shipping Weight                                     | 3.95 kg (8.7 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                                                                                                                                                                                                                    |
| <b>Power, ESD, and Regulatory</b>                   |                                                                                                                                                                                                                                               |
| Power Supply                                        | 24V DC 1.25A or PoH (Power over HDBaseT)                                                                                                                                                                                                      |
| Power over Ethernet (PoE) Compatibility             | 802.3af Alternative A, 15 watts per port, 48V available at remote device                                                                                                                                                                      |
| Power Consumption                                   | 48 watts (max)                                                                                                                                                                                                                                |
| ESD Protection                                      | 15kV air, 8kV contact                                                                                                                                                                                                                         |
| Product Regulatory                                  | UL, FCC, CE, RoHS                                                                                                                                                                                                                             |
| <b>Other</b>                                        |                                                                                                                                                                                                                                               |
| 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, Power Supply, Straight-Through DE9 Male to Female RS232 Cable, Eight (8) 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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