



Manual

TX2 Table Hub & DX2 Room Hub Interconnectivity System

Contents

	Please read this first	5		
	About this Document	6		
Section 1	The Basics	7	Section 7	Default Settings & Application Examples
	1.A System Basics	8		7.A Default Settings
				7.B Default IP Address
				7.C Use Case - Single Display Presentation System + BYOD
				7.C Single Display Presentation System
				7.D Use Case - All-in-One Video Bar + BYOD
				7.D Single Display - All-in-One Video Bar + BYOD
				7.D Dual Display - All-in-One Video Bar + BYOD
				7.E Use Case - Room PC + BYOD
				7.F Single Display - Room PC + BYOD
				7.F Dual Display - Room PC + BYOD
				7.G Use Case - VC System – MTR/Separates
				7.G Single Display - VC System – MTR/Separates
				7.G Dual Display - VC System – MTR/Separates
Section 2	Package Contents	9	Section 8	Initial Setup & Power Up
	2.A TX2 Box Labels	10		8.A Setup
	2.B TX2 Box Contents	10		8.B Initial Power Up Sequence
	2.C Shipping Weights	10		8.C Basic Operation
	2.D Optional Accessories	11		
	2.E DX2 Box Labels	11		
	2.F DX2 Box Contents	11		
	2.G Shipping Weights	11		
Section 3	TX2 Table Hub Transmitter	12	Section 9	System Configurator
	3.A TX2 Overview	13		9.A System Configurator Introduction
	3.B TX2 Connectivity Overview	14		9.B Start System Configurator
	3.C TX2 Connectivity Schematic	15		9.C Configuration Elements Explained
				9.D Mode Setup
Section 4	DX2 Room Hub Receiver	16		9.E Manual Control Page
	4.A DX2 Overview	17		9.F Network Page
	4.B DX2 Connectivity 1 Overview	18		9.G Systems Page
	4.C DX2 Connectivity 2 Overview	19		
	4.D DX2 Connectivity 2 Schematic	20		
Section 5	Installation Instructions	21		
	5.A DX2-TX2 Table Hub Installation Guide	22		
	5.B DX2-AB Equipment Plate Installation Guide	23		
Section 6	System Wiring	24		
	6.A System Wiring	25		
	6.B Single Display	26		
	6.C Dual Display	27		

Section 10	Technical Resource	60
	10.A TX2 Table Hub Technical Overview	61
	10.B TX2 Table Hub Mechanical Overview	62
	10.C DX2 Room Hub Technical Overview	63
	10.D DX2 Room Hub Mechanical Overview	64
Section 11	Important Safety Information	65
	Important Safety Information	66
	TX2 & DX2 Specific Safety Information	66
	Electrical	66
Section 12	Environmental Policy	67
	Environmental Policy	68
	Materials and Manufacture	68
	Packaging	68
	Recycling Ashton Bentley	68
Section 13	Warranty	69
	Warranty Overview	70
	Year Two & Three-Return to Base	70



Thank you for choosing Ashton Bentley

Please read before proceeding.

Before proceeding with assembly, connection, and operation, please ensure that you read this document fully, and any additional documentation that may be included with the product.

Please keep this manual for future reference.

Important. Please read Section 11 Important Safety information

Trademark Information

Ashton Bentley®, and the names and marks associated with Ashton Bentley Group Limited's products, are trademarks and/or service marks of Ashton Bentley Group Limited, and are registered and/or common law marks in the United Kingdom and various other countries. All other trademarks are property of their respective owners.

Patent Information

The accompanying product is protected by one or more UK, EU, US, and foreign patents and/or pending patent applications held by Ashton Bentley Technology Limited.

© 2023 Ashton Bentley Group Limited, All rights reserved.
23 Schooner Court, Crossways Business Park, Dartford, DA2 6NW, United Kingdom.

No part of this documentation may be reproduced or transmitted in any form or by any means, electronic or mechanical, for any purpose, without the express written permission of Ashton Bentley Group Limited. Under the law, reproducing includes translating into another language or format. As between the parties, Ashton Bentley Group Limited retains title to and ownership of all proprietary rights with respect to the software contained within its products. The software is protected by copyright laws and international treaty provision. Therefore, the software must be treated like any other copyrighted material (e.g., a book or sound recording). Every effort has been made to ensure that the information in this manual is accurate. Ashton Bentley Group Limited is not responsible for printing or clerical errors. Information in this document is subject to change.

About this document.

In this manual you will find everything you need to assemble, connect, test, and configure the following products:

TX2 Table Hub

Supplied with:

- 1 x 10m Cat7 Cable

DX2 Room Hub

Supplied with:

- 1 x System PSU

Connection and operation of 3rd party products are not covered by this document.

Please note

Illustrations in this document might look different from your product.

Content is subject to change without notice



1. The Basics

1.A System Basics.

To appreciate the functions of the Ashton Bentley solution, it is useful to understand how the system is designed and how it operates.

The TX2 Table Hub (1) is installed under a table, in a lectern or wherever a connection to laptops is required.

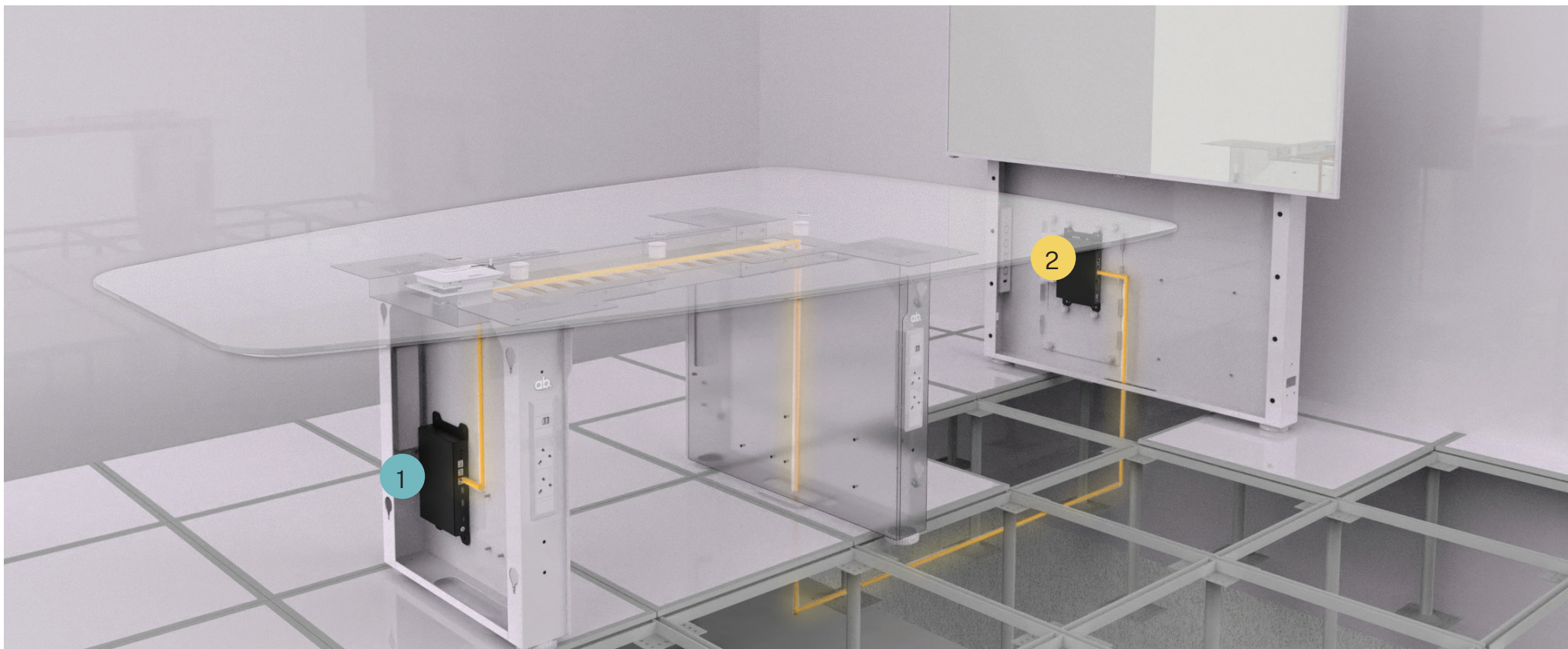
Two laptops -USB-C & HDMI -can be connected either by direct cables or retractors. If using retractors these are housed in the Ashton Bentley Tablebox. The Tablebox Touch Panel is connected to the TX2.

The DX2 Room Hub (2) is installed in a chassis mount or near/behind the display where the Video Bar or VC equipment is located. The unit contains all the system/display control and signal routing.

The two boxes are linked with a single Cat6A or Cat7 cable, which can be up to 35m.

The complete system replaces the usual rack of equipment required for most meeting rooms.

Despite their diminutive size the DX2 & TX2 provide the essential infrastructure for nearly all audio-visual requirements. The system operation can be customised via the Systems Configuration tool that is accessed through an internal web server in the DX2.



2. Package Contents

2.A TX2 Box Labels - Identifying the Products.

Each box has a packing label with details about the contents. Please ensure you have all boxes as listed in your delivery documents, and that the contents of all boxes are as listed on the following pages.

Please inform your vendor immediately if any boxes are damaged or contents missing.

Box Label

ab. Ashton Bentley.

A

TX2 - Table Hub

B

TX2

Part No. 900-00550

C

Serial No. TX220220900040



D



E

F



RoHS compliant





Ashton Bentley Collaboration Spaces Ltd.

+44 (0)207 100 1200 | spaces@ashtonbentley.com | www.ashtonbentley.com

23 Schooner Park, Crossways Business Park, DA2 6NW United Kingdom

Made in China

Label 440-00201

- A: Product Description
- B: Carton ID
- C: Part Number
- D: Part Number Barcode
- E: Serial Number
- F: Compliance & Conformity

2.B Box Contents

TX2 Table Hub		900-00550
Qty	Box Contents	Part Number
1	TX2 Table Hub Assembly	810-00302
1	10m CAT7 Cable	115-00087
1	TX2 Quick Start and Safety Guide	770-00063

2.C Shipping Weights & Dimensions

Shipping Weight:4Kg

Dimensions (mm):(L) 325 x (W)315 x (H)145

2.D Optional Accessories (Supplied Separately)

- TX2 USB-C Charging PSU (100W)
- 2.5m Locking USB-C Input Cable
- 2.8m Locking HDMI Input Cable

900-00585

115-00065

115-00066

- Tablebox
- Tablebox Touch Panel
- 3rd Party Under-Table Tablebox Enclosure

900-00491

900-00509

900-00528

- USB-C Retractor
- HDMI Retractor

900-00490

900-00489

Manual - TX2 Table Hub & DX2 Room Hub Interconnectivity System Doc Ref: 770-00067 Rev1 01/04/23

2.E DX2 Box Labels - Identifying the Products.

Each box has a packing label with details about the contents. Please ensure you have all boxes as listed in your delivery documents, and that the contents of all boxes are as listed on the following pages.

Please inform your vendor immediately if any boxes are damaged or contents missing.

Box Label



- A: Product Description
- B: Carton ID
- C: Part Number
- D: Part Number Barcode
- E: Serial Number
- F: Compliance & Conformity

2.F Box Contents

DX2 Room Hub		900-00551
Qty	Box Contents	Part Number
1	DX2 Room Hub Assembly	810-00303
1	DX2 65W-24V PSU	170-00012
1	DX2 Quick Start and Safety Guide	770-00064

2.G Shipping Weights & Dimensions

Shipping Weight: 4Kg
 Dimensions (mm): (L) 325 x (W)315 x (H)145

3. TX2 Table Hub

3.A TX2 Table Hub.

The TX2 Table Hub is an interface designed to connect USB-C and HDMI Inputs over distance to a presentation system, Video Bar or Video Communication system via the DX2 Room Hub.

The TX2 is installed under a table, in a lectern or wherever connection to laptops or similar devices is required.

Product Attributes

- Fully featured USB-C and HDMI connectivity with input signal sensing
- Uncompressed 4K60 4:4:4 resolution video routing / transmission
- Independently scalable HDMI output port for monitor or local content ingest
- Dedicated USB-C network port
- Independent EDID control of each input
- HDCP support or blocking
- USB-C input connectivity to DX2 USB Hub
- Optional USB-C Power input for USB-C laptop charging
- ABNET control connection for AB Tablebox touch panel
- Cat6A or Cat7 link to DX2 (Video audio, USB, and Control) -up to 35m
- Powered over Cat7 link from DX2; USB-C charging requires optional power supply



3.B TX2 Table Hub Connectivity.



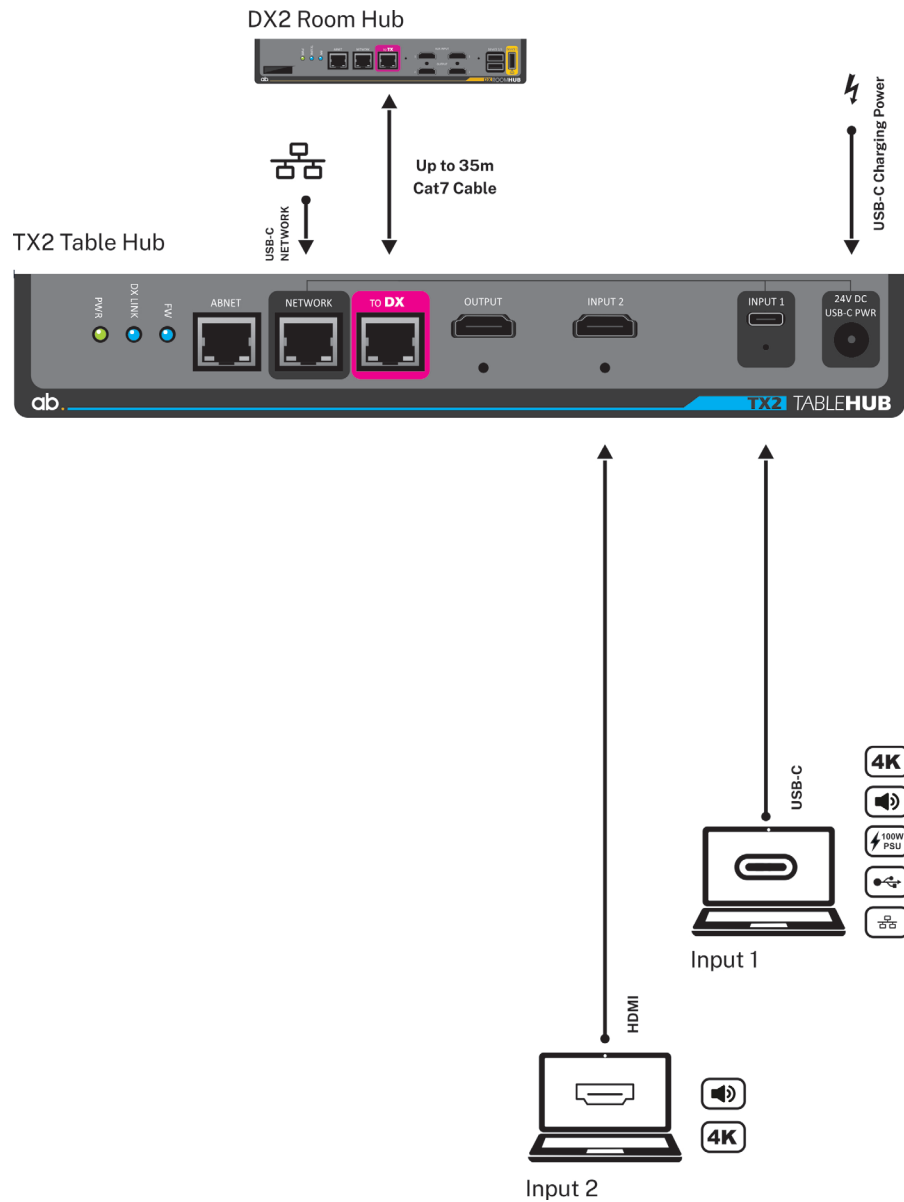
Connection	Type	Function
NETWORK	RJ45	1000BaseT Network connection
To DX2	RJ45	Cat7 Interconnection to DX2
OUTPUT	HDMI	Connection to a display or ingest on device
INPUT 2	HDMI	Connection to User Input Device
INPUT 1	USB-C	Connection to User Input Device
24V DC USB-C PWR	DC	24v Power Input (USB-C Charge)

Understanding the LED's

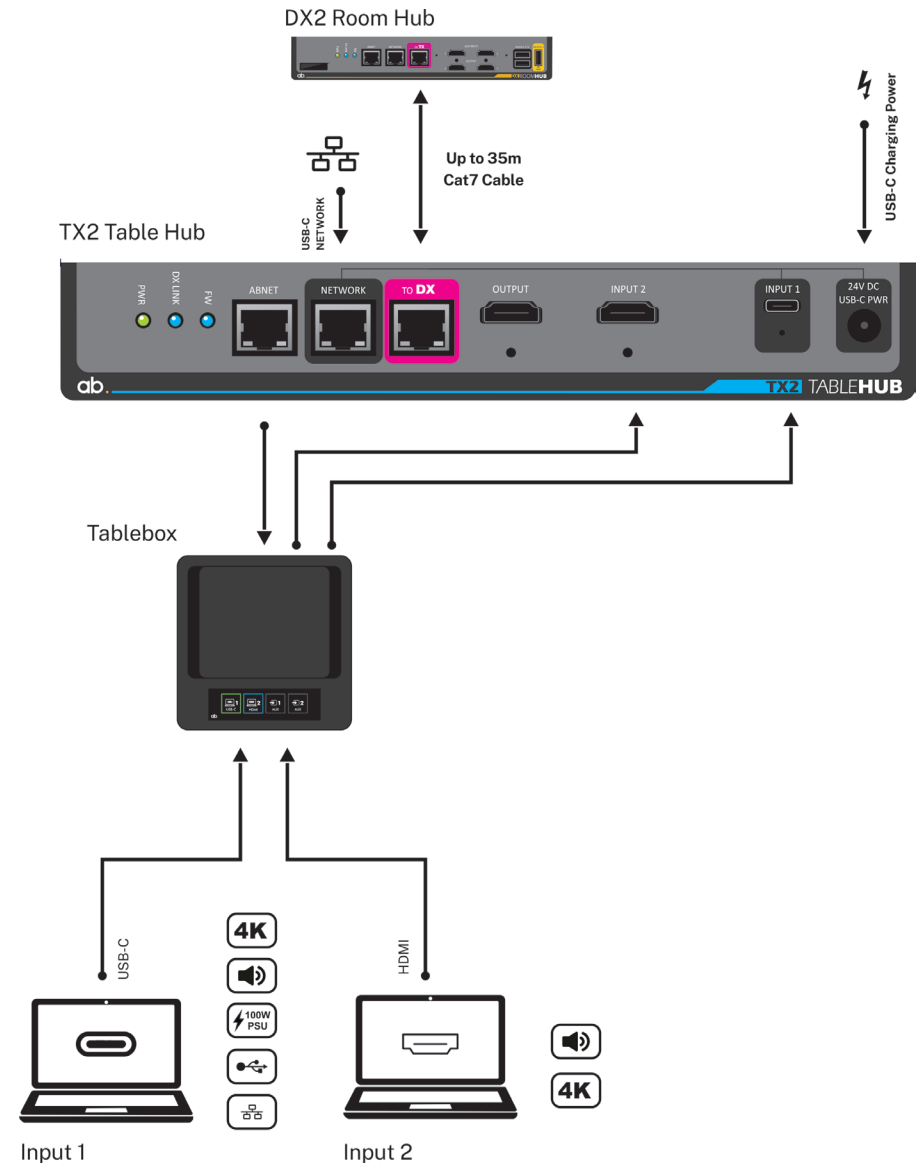
- The TX2 Table Hub includes status LED indicators:
- PWR -Power live
 - DX2 Link -Link to DX2 active
 - FW -Firmware health (engineering) [Flashing = Firmware running]

3.C TX2 Connectivity Schematic.

Without Tablebox



With Tablebox



4. DX2 Room Hub

4.A DX2 Room Hub.

Provides system/display control and signal routing. Also monitors all functionality and connectivity to simplify maintenance and support.

Works with most video conferencing products and traditional codecs. Video loudspeaker bars are supported either in Bring Your Own Device (BYOD) mode, embedded Teams/Zoom engine, or both.

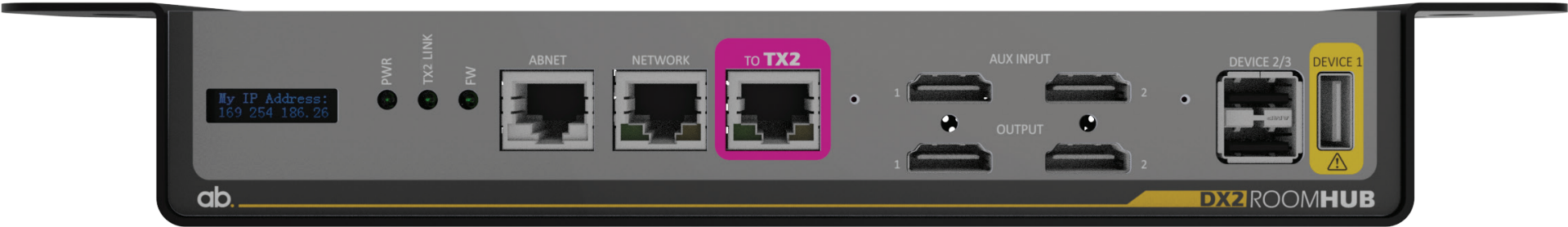
Attributes:

- Uncompressed 4K60 4:4:4 resolution inputs and outputs
- Cat6A or Cat7 link to TX2 (Video, audio, USB, control, and power) -up to 35m
- System Configuration tool via internal web server for set-up and control
- 2 Auxiliary HDMI input ports with input signal sensing
- 2 independently scalable HDMI output ports
- 3 USB device ports, 2 with configurable 'Hot-plug' power control
- ABNET for connection of AB peripheral devices
- Independent EDID control of each input
- HDCP selectable for each input
- Selectable CEC display control
- 2 Configurable RS232 display control ports
- Programmable Cisco codec control port
- Programmable RS232 3rd Party control system control port
- Inbuilt status, and diagnostics reporting via TCP/IP connection to cloud management platforms
- OLED status display
- External Universal PSU



4.B DX Room Hub Connectivity.

Connectivity Plate 1



Connection	Type	Function
ABNET	RJ45	ABNET RJ45 RS485 Link to AB Peripherals
NETWORK	RJ45	100BaseT Network connection
To TX2	RJ45	Cat7 Interconnection to TX2
OUTPUT1	HDMI	Connection to Video Bar or Display
OUTPUT 2	HDMI	Connection to Video Bar or Display
AUX INPUT 1	HDMI	Auxiliary Input 1
AUX INPUT 2	HDMI	Auxiliary Input 2
DEVICE 2/3	USB-A	USB-A with 5v Power (switched under DX2 control)
DEVICE 1	USB-A	USB-A with 5v (non-switched)

Understanding the LED's

The DX2 Room Hub includes status LED indicators:

- PWR -Power live
- TX2 Link -Link to TX2 active
- FW -Firmware health (engineering) [Flashing = Firmware running]

Aux Input 1

- Connection status LED (Red No signal; Green signal connected)

Aux Input 2

- Connection status LED (Red No signal; Green Signal connected)

LCD Display

Indicates:

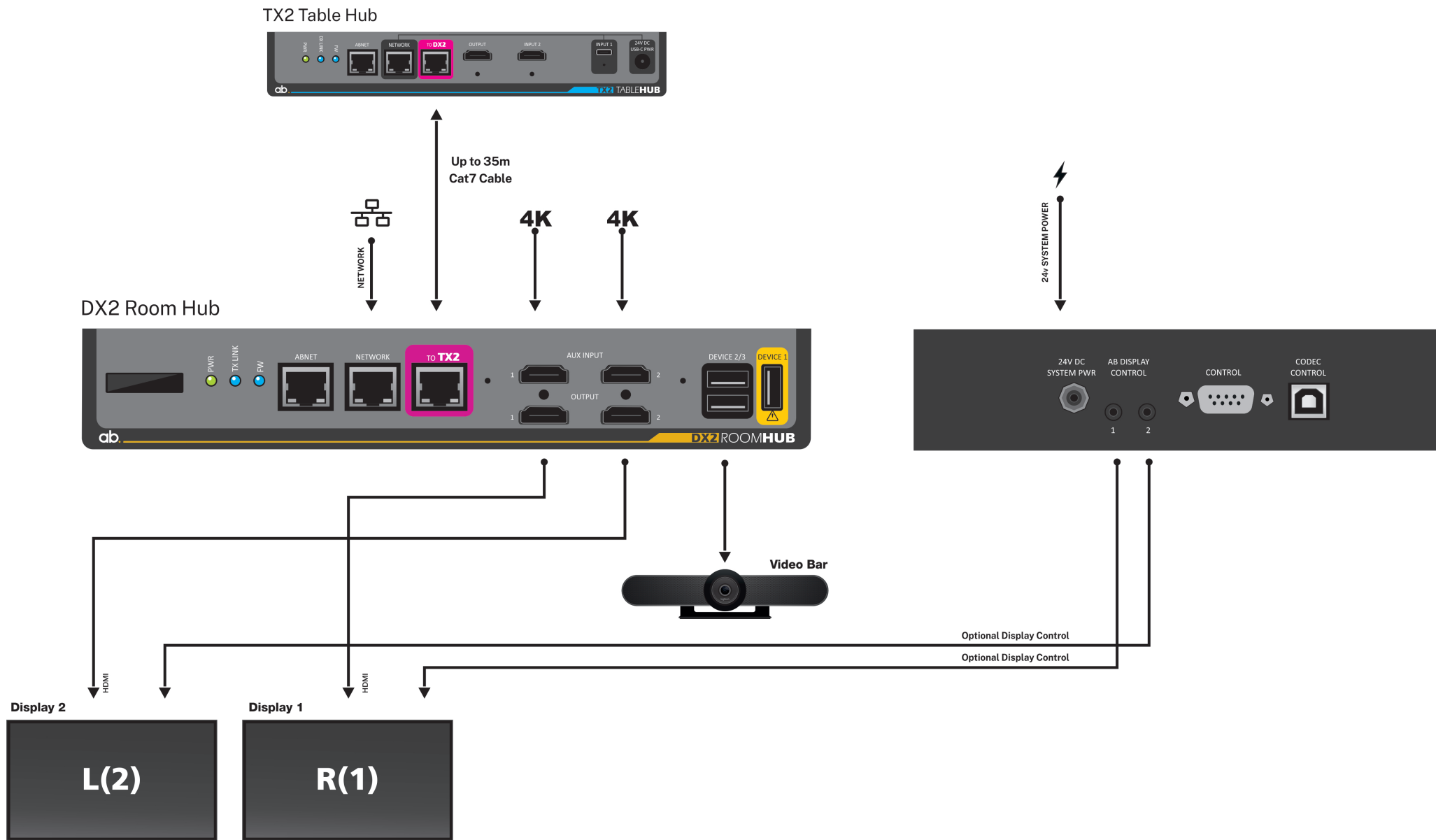
- IP Address
- Gateway
- Subnet Mask
- Firmware Version

Connectivity Plate 2



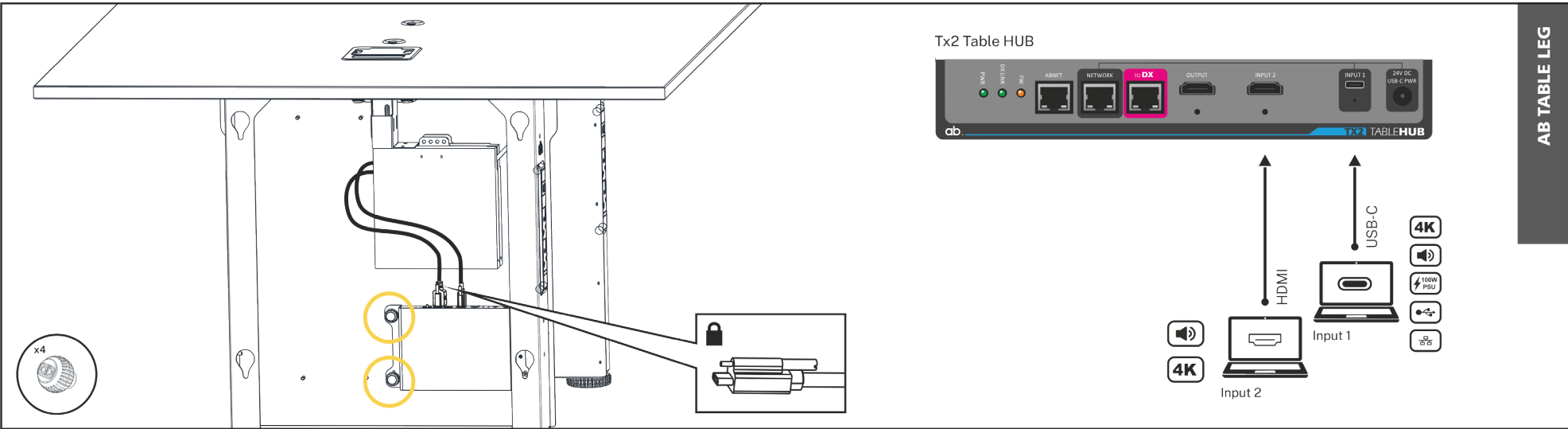
Connection	Type	Function
24v DC System Power	DC Power Jack	24v System Power Inlet
AB DISPLAY CONTROL 1	3.5mm 3 Pole Jack	RS232 Display Control
AB DISPLAY CONTROL 2	3.5mm 3 Pole Jack	RS232 Display Control
CONTROL	D Sub 9 Pin Female	Control codecs with Serial Port
CODEC CONTROL	USB-B	Control codecs with USB-B Port

4.C DX2 Connectivity Schematic.

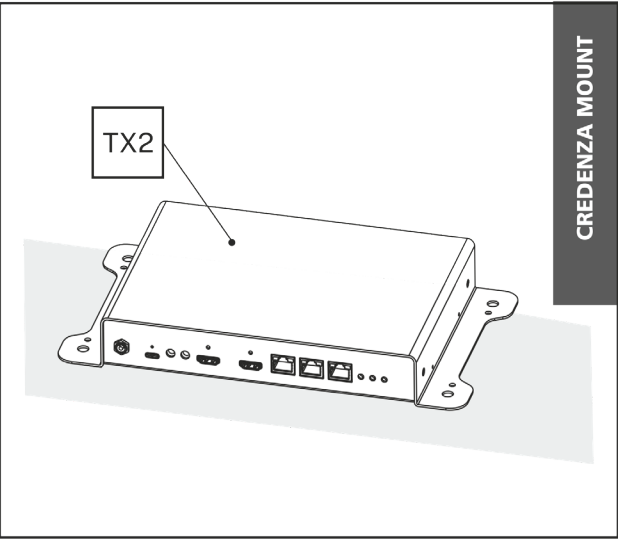


5. Installation Instructions

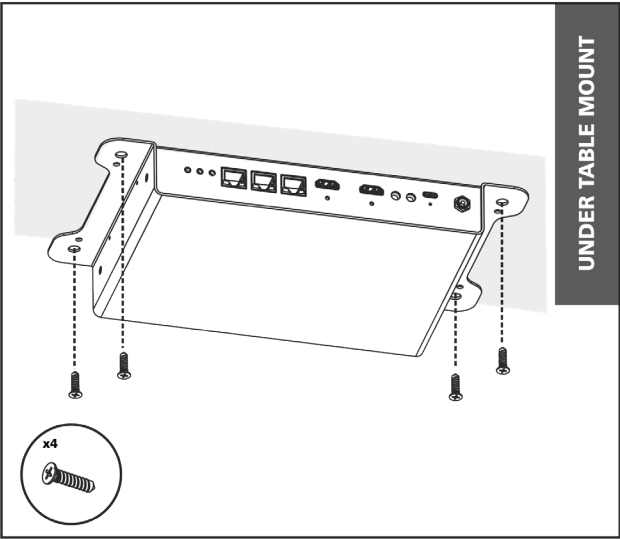
5.A TX2 Table Hub - Installation Options.



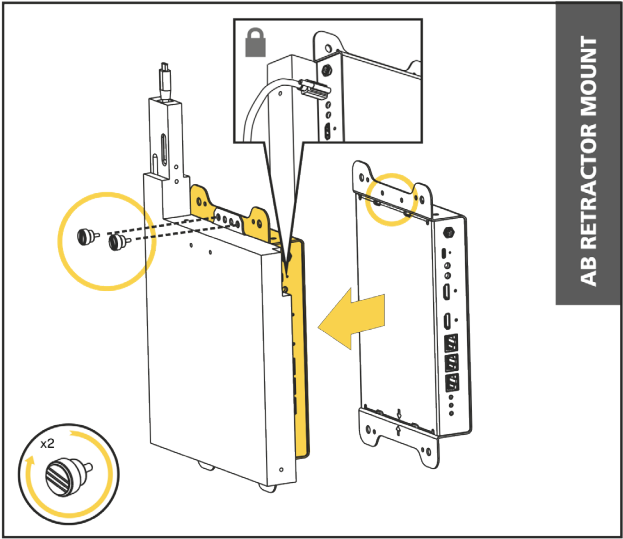
AB table legs have space dedicated for the TX2. Mount using 4 x female AB knobs supplied. AB Input Cables or Retractors can be connected to the TX2 with the locking connectors for secure connection.



The TX2 can be installed on any level surface, for example, in a credenza or rack.



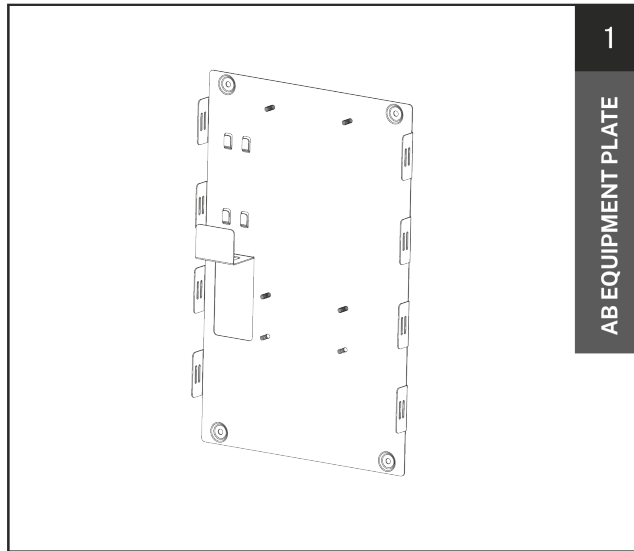
Ashton Bentley tables have fixing points (use 4 male AB knobs provided). 3rd party tables use relevant fixings (not supplied).



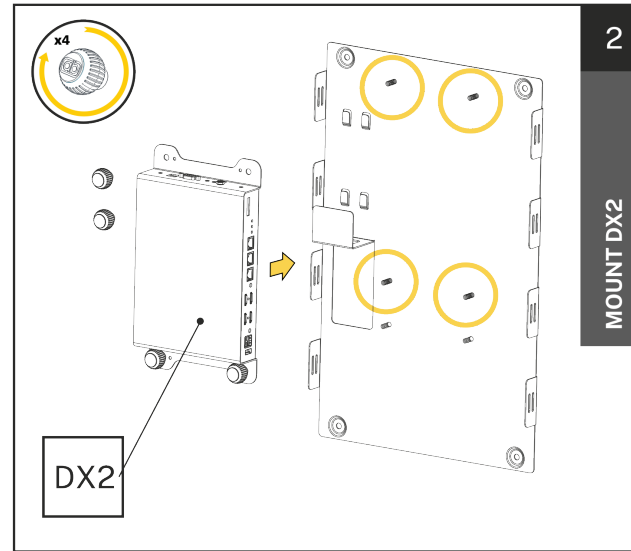
The TX2 can also be secured to the side of an AB Retractor using 2 x M3 thumb screws. The cable out of the Retractor has a locking connector to securely connect to the TX2.

5.B DX2 Room Hub - Installation Options.

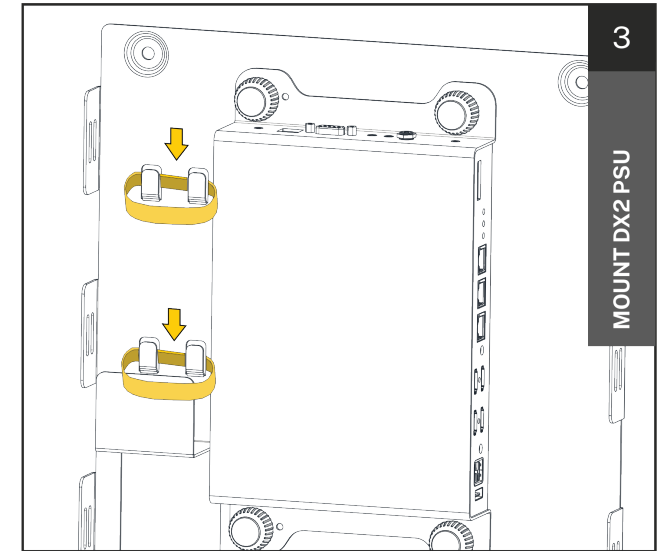
The DX2 can be installed behind displays or in any space close to the display. Fixings for this are not included. When using an Ashton Bentley Chassis follow the instructions below.



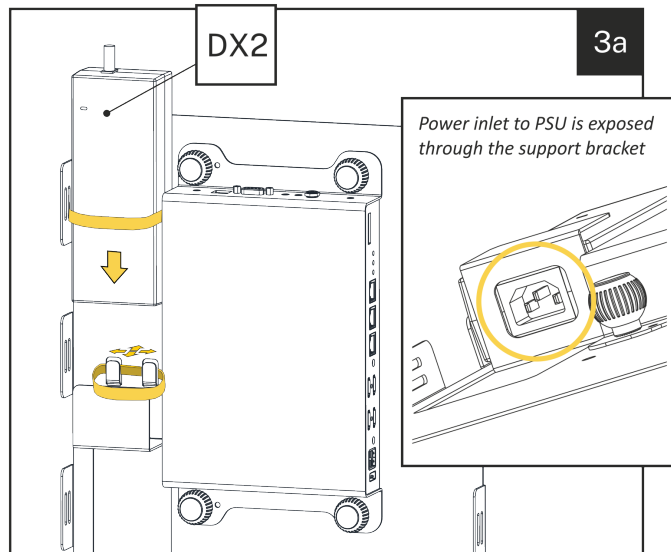
When secured inside an AB Chassis the DX2 is fitted to the Ashton Bentley Equipment Plate.



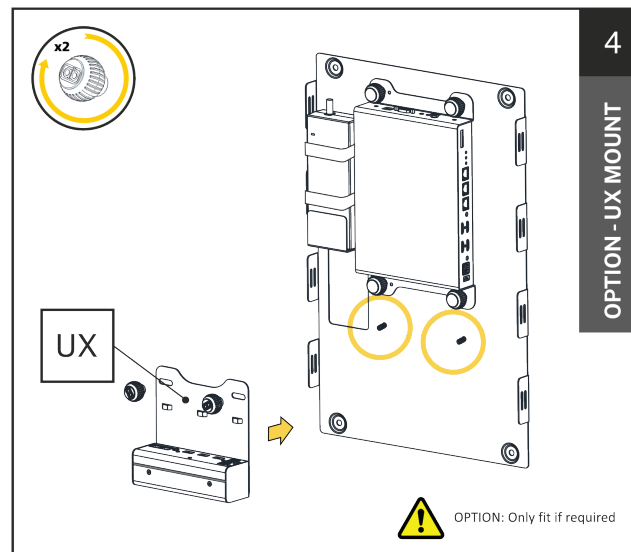
Remove the DX2 Room Hub from box marked DX2. Secure DX2 onto the AB Equipment Plate with 4 x female AB Knobs supplied.



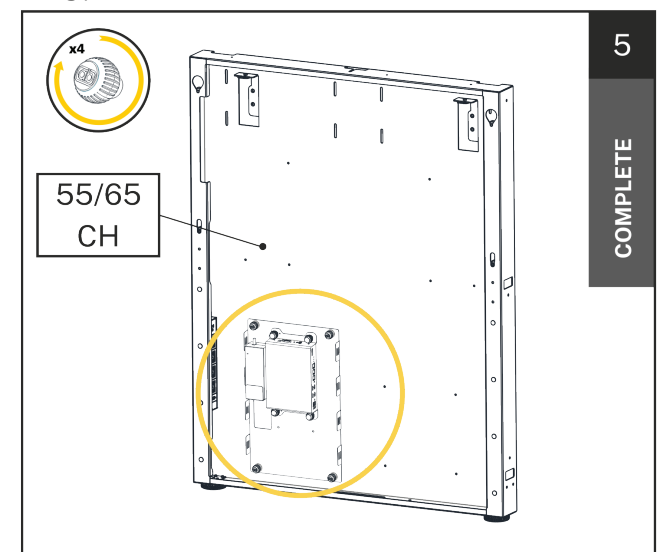
Remove DX2 PSU from box DX2. Secure the DX2 PSU using the two elasticated fixing straps supplied. Place the straps over the fixing positions next to the DX2 Room Hub.



Stretch straps sufficiently to allow the DX2 PSU to pass through and be fixed in place. A bracket on the AB Equipment Plate provides additional support.



If using a UX USB Smart Switch, remove from box UX, then secure to the AB Equipment Plate with 2 x female AB Knobs supplied.



Install the assembled AB Equipment Plate into the Chassis using 4 x female AB Knobs supplied.

6. System Wiring



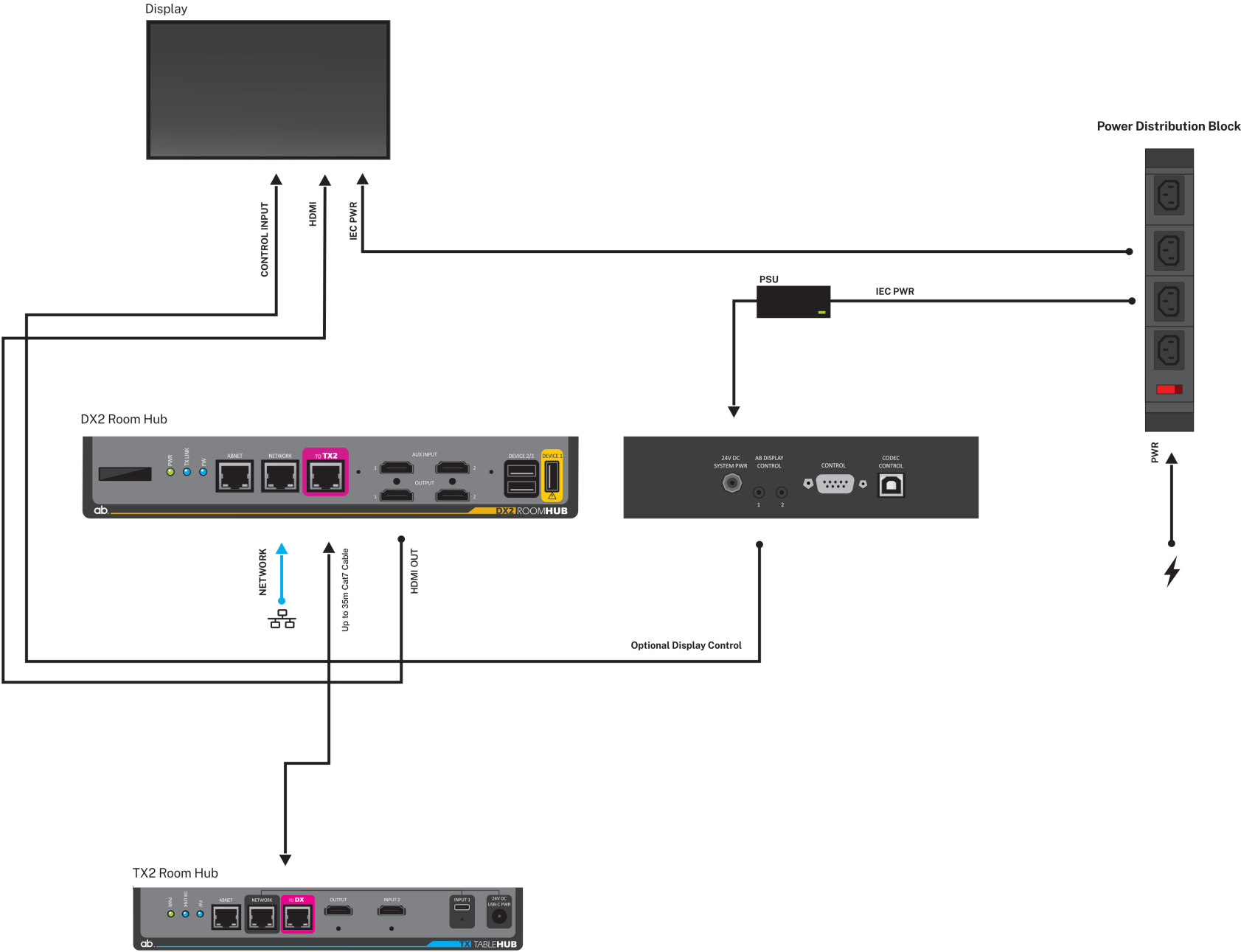
6.A System Wiring.

The DX2 & TX2 are used in most Ashton Bentley room systems, and can also be used with 3rd party products to form custom solutions.

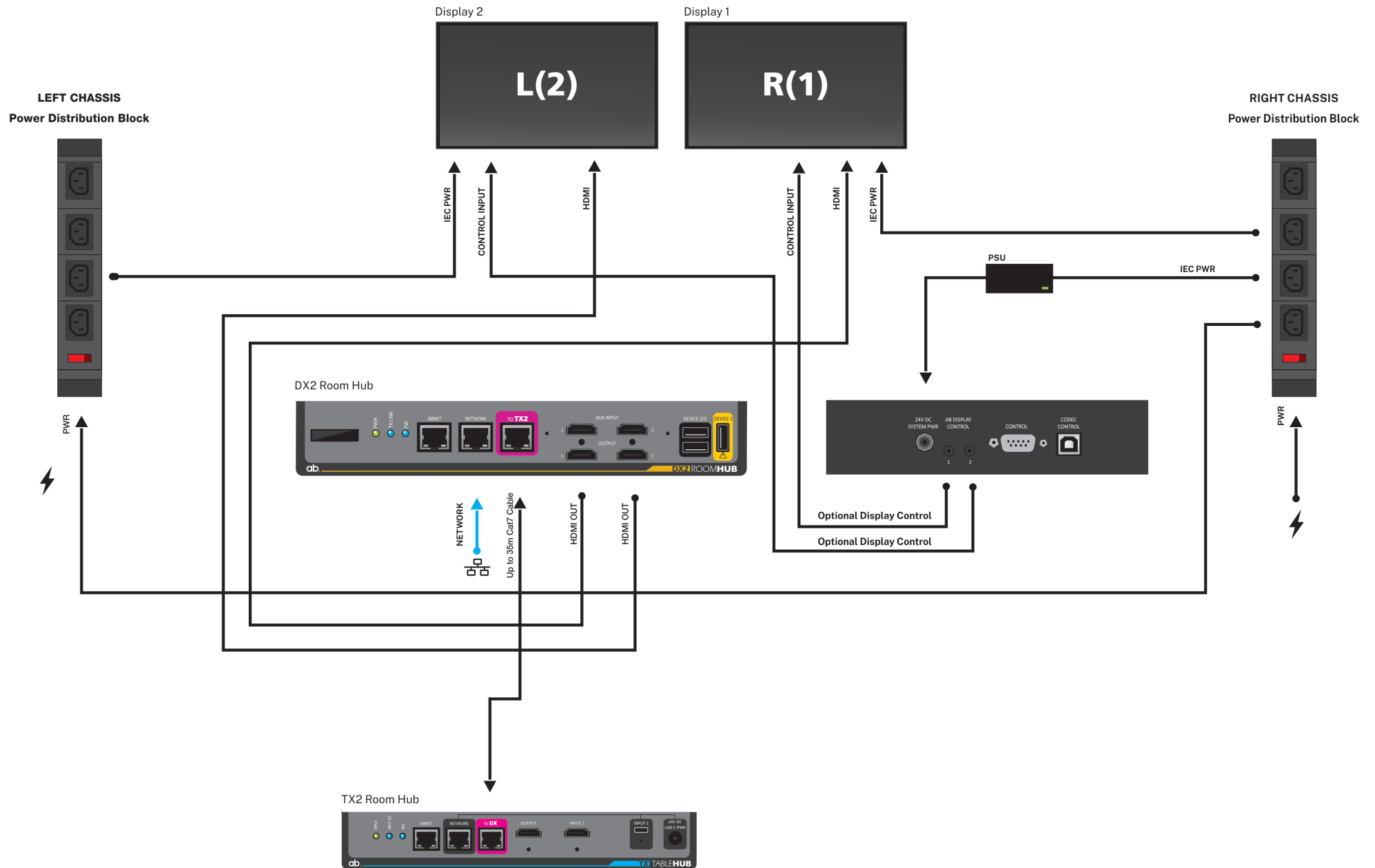
When used as part of an Ashton Bentley room system, all cables required to wire as a basic presentation system are included with the Chassis. Additional cables to integrate VC and other hardware will need to be provided by others.

The following schematics detail how the TX2 and DX2 should be wired.

6.B Wiring Single Connect Chassis Systems.



6.C Wiring - Dual Connect Chassis Systems.



7. Default Settings & Applications

7.A Default Settings.

Out of the box the DX2 & TX2 are set in the 'OFF' mode, and the default settings are as shown below. The applications shown in this section will work without any setting changes.

TX2

- The last laptop connected will take precedence and be transmitted to the DX2.
- Inputs to the TX2 take precedence over AUX inputs on the DX2.

DX2

- AUX Input 1-auto switch 'on'.

7.B Default IP Address.

169.254.186.26

This address is within the windows default range and so it should be possible to connect to the DX2 to access the internal web server for the System Configuration tool without needing to set-up a static address on the laptop.

7.D Applications Introduction.

The completely flexible nature of the TX2/DX2 system, together with easy configuration, means that the most complex meeting room system can be built and deployed with no 3rd party control system or / and bespoke programming.

Different systems can easily be built with the same TX2/DX2 hardware by simply changing settings. This greatly reduces deployment time and cost, while reducing maintenance costs by standardisation.

This section denotes how to connect in various real-world scenarios. They are by no means comprehensive and are only intended to show what is possible.

- Single Display Presentation System + BYOD
- Single Display All-in-One Video Bar System + BYOD
- Dual Display All-in-One Video Bar System + BYOD
- Single Display Room PC System + BYOD
- Dual Display Room PC System + BYOD
- Single Display VC System – MTR/Separates
- Dual Display VC System – MTR/Separates

As indicated in the above examples, very complex systems can be easily built. Signals can be routed to suit all requirements with other functions selected or not selected. There are many other combinations of systems that can be built using DX2 and TX2, please contact your dealer, or support@ashtonbentley.com, should further support be required.

7.E Use Case - Single Display Presentation System.

In this simple system there is a Room PC and Signage Player connected via the Aux Inputs on the DX2.

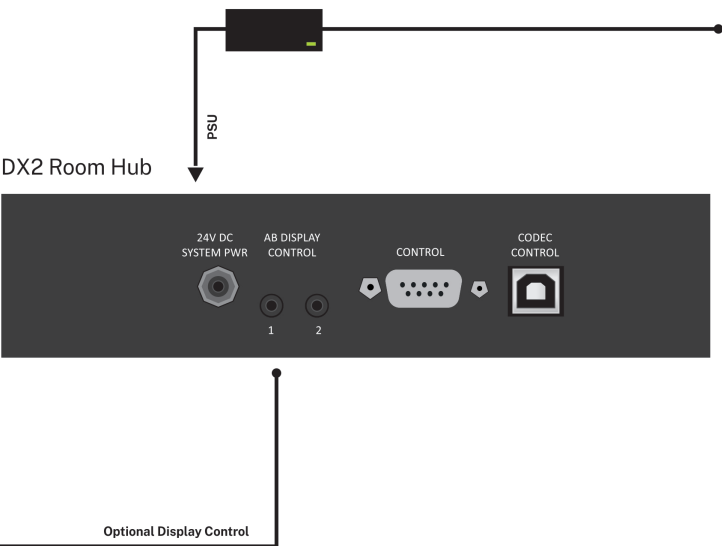
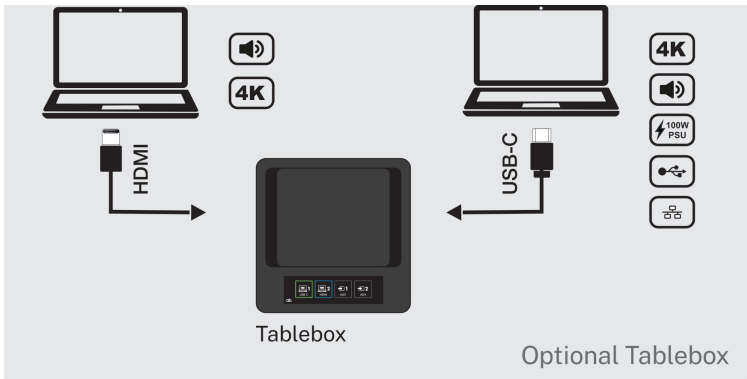
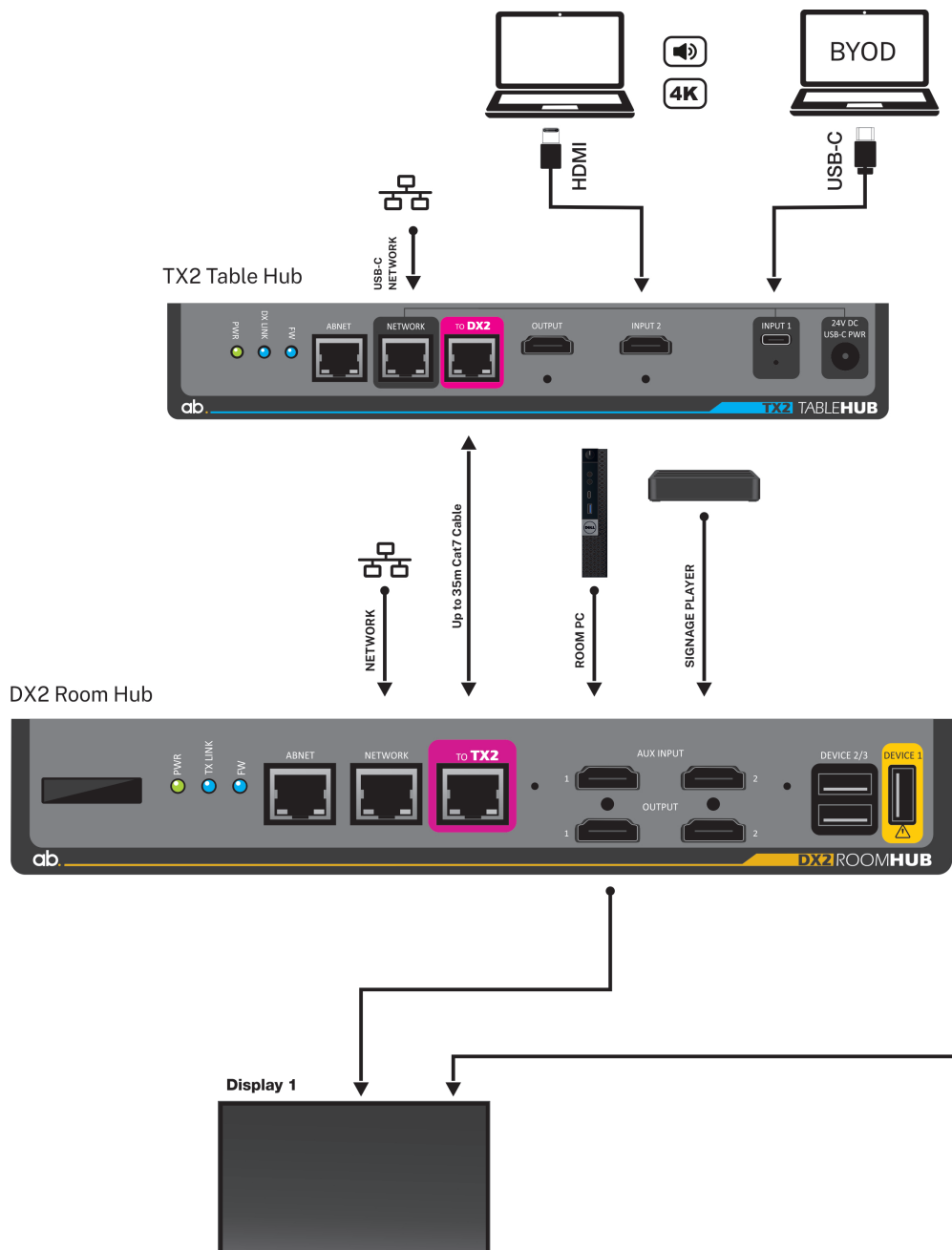
When the system is not in use, the signage player generates constant output, and this is shown on the display.

When the Room PC is 'woken' up and comes out of standby, it overrides the Signage Player and is automatically displayed.

Should either a USB-C or HDMI laptop be connected to the TX2, these will override both the Room PC and the Signage Player.

If required a touch panel (in the Tablebox) can be connected to the TX2 so that the user can manually switch between any of the sources.

7.E Single Display Presentation System.



7.F Use Case - All-in-One Video Bar + BYOD.

Here is a similar example, using an active video loudspeaker bar instead of a PC. These devices usually have a BYOD input connection, which can connect through to the USB-C input on the TX2.

There is one output from the DX2 connected to a display.

The output from the bar goes into the DX2 Auxiliary Input 1. This allows the DX2 to detect the signal and turn the display on/off.

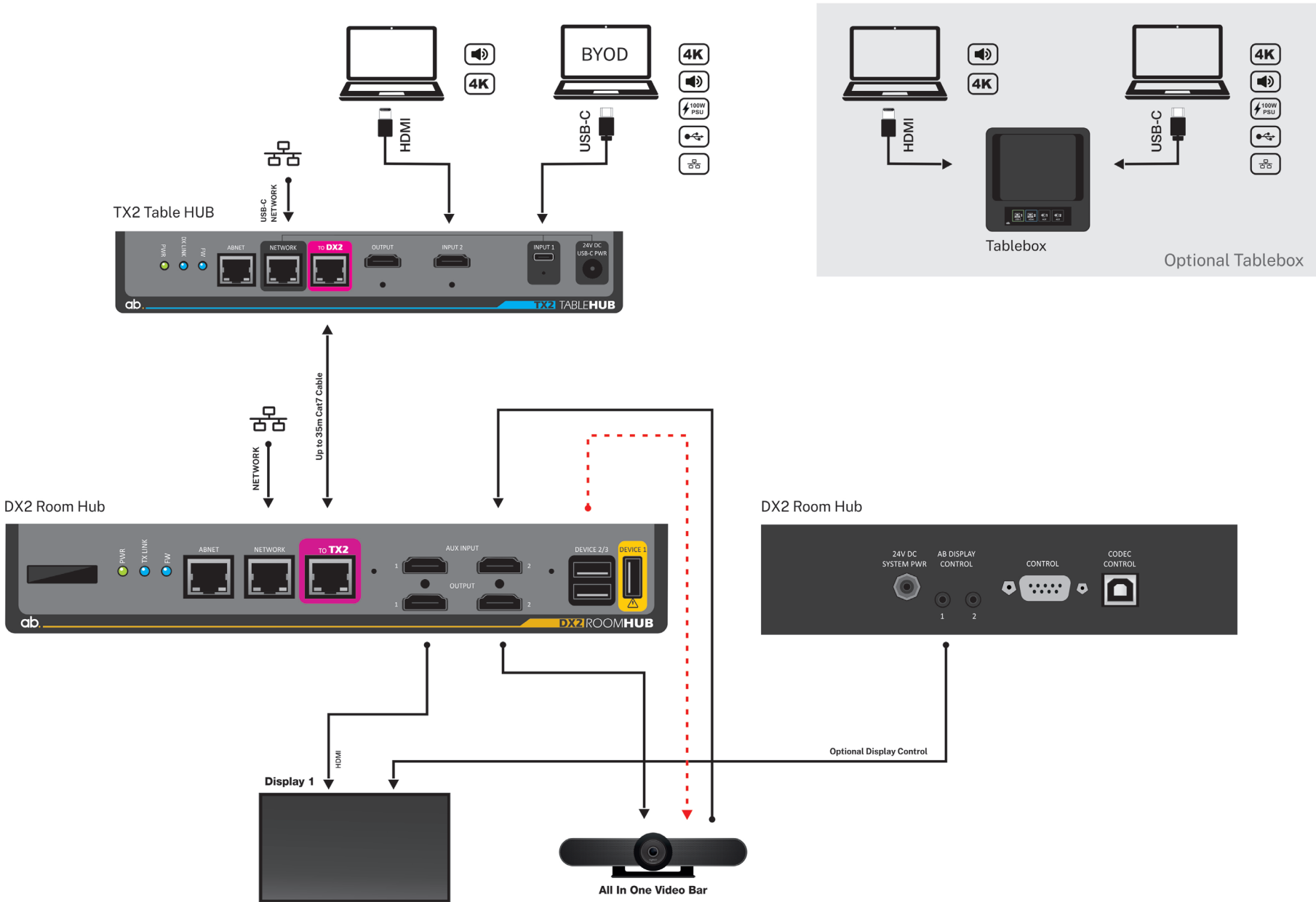
There is a USB connection from the DX2 to the bar, this will carry the BYOD signals from the TX2 USB-C connection.

One potential issue is when a USB-C laptop is connected:

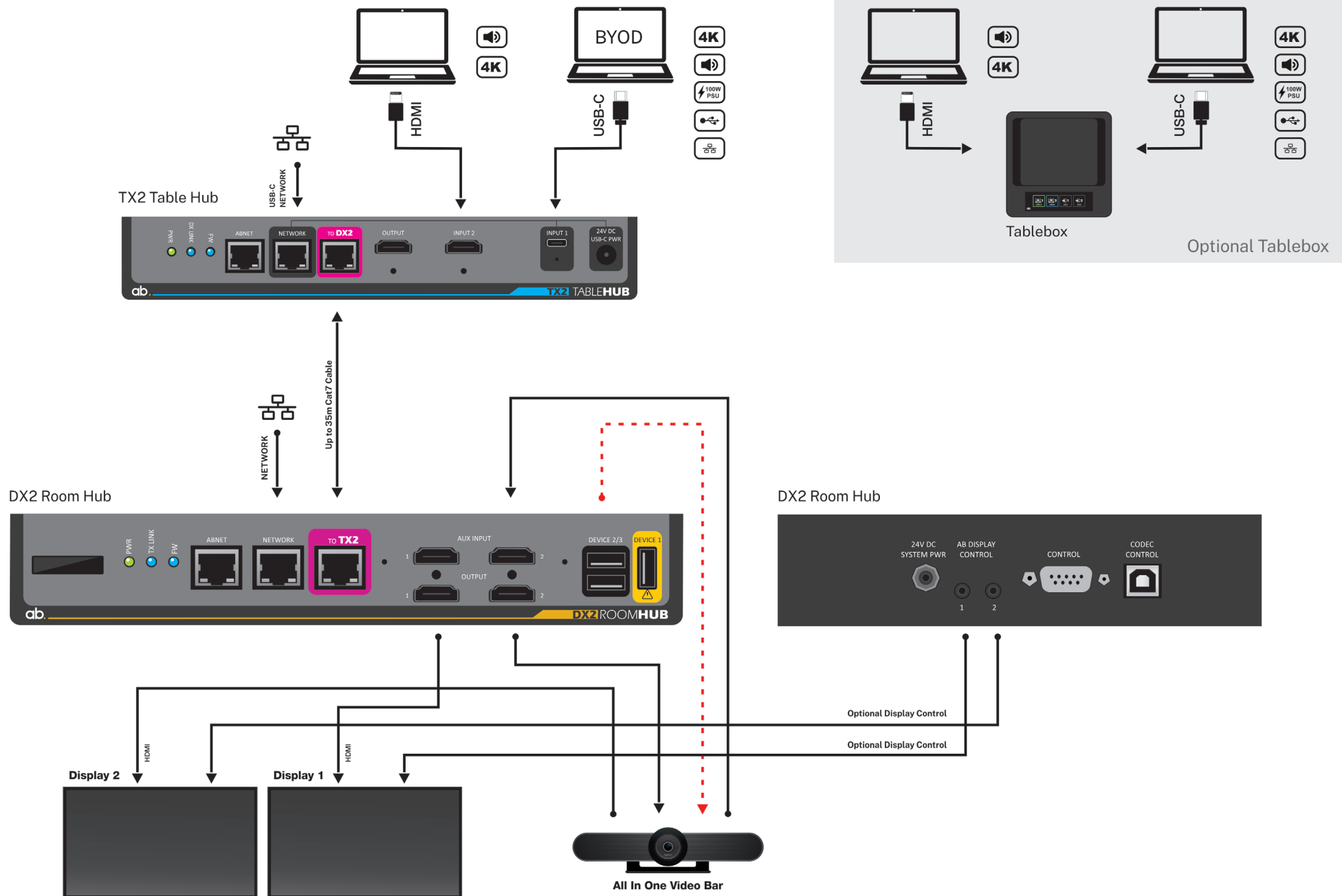
- Should it just provide a video signal to the bar, or;
- Does it require full BYOD capability?

This can be solved easily by including the Ashton Bentley Touch Panel in the Tablebox. This panel can be populated with a BYOD button that controls the DX2 USB output port and allows the BYOD function to be selected as and when required.

7.F Single Display All-in-One Video Bar + BYOD.



7.F Dual Display All-in-One Video Bar + BYOD.



7.G Use Case - Room PC + BYOD.

In this example is a Room PC, running a video client that requires a USB connection, together with BYOD being provided by the USB-C connection at the TX2.

To achieve this AB developed the optional Ashton Bentley UX switch.

The UX has two USB host ports:

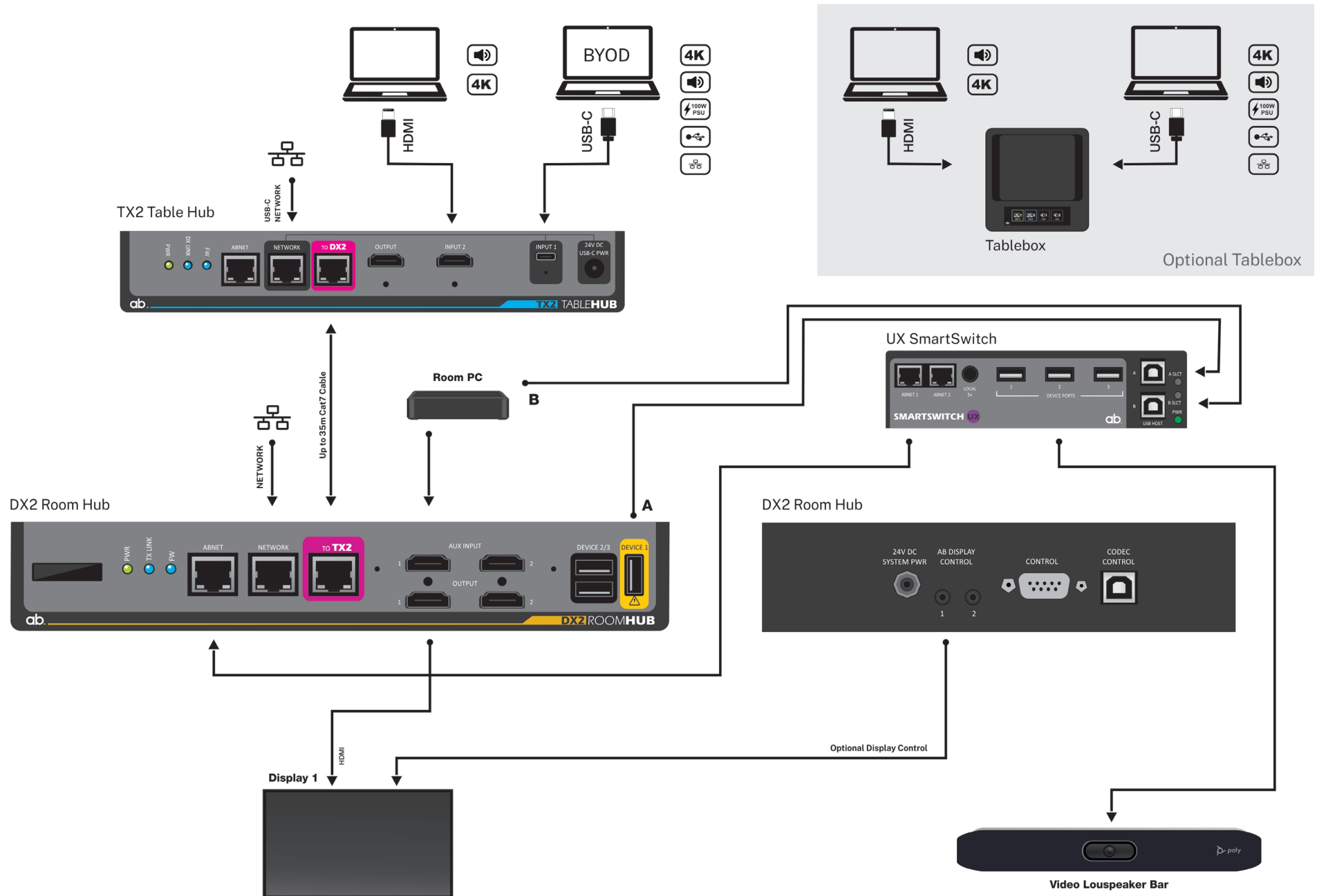
- To the Room PC
- To the DX2

The UX is connected to the DX2 using the ABNET bus which also provides power to it.

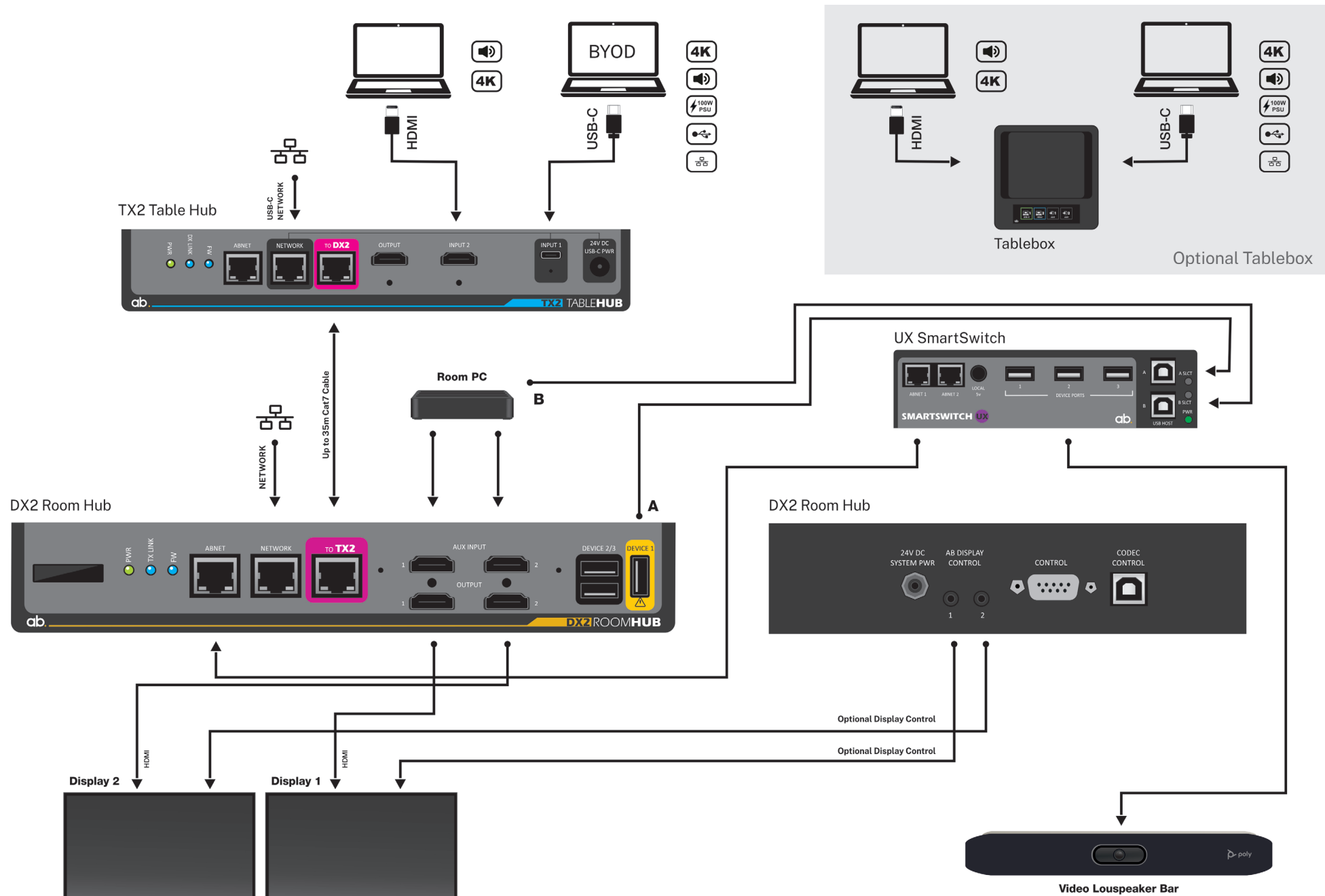
The system is configured so that the video-loudspeaker bar USB port is always switched to the room PC, except when the USB-C laptop is connected, at which point, the video loudspeaker bar is connected through to the USB-C port.

The ‘toggle power’ feature is turned on so that the video-loudspeaker bar sees a power disconnection between switches and so enumerates correctly. See Section 9 page 52 DX2 USB Hub.

7.G Single Display Room PC + BYOD.



7.G Dual Display Room PC + BYOD.



7.H Use Case - VC System – MTR/Separates.

In this example, there is a Microsoft Teams or Zoom Room PC with content ingest. One output of the PC is connected to the DX2, and the other to the display[s]. The 2nd output of the DX2 is connected to the content input on the PC.

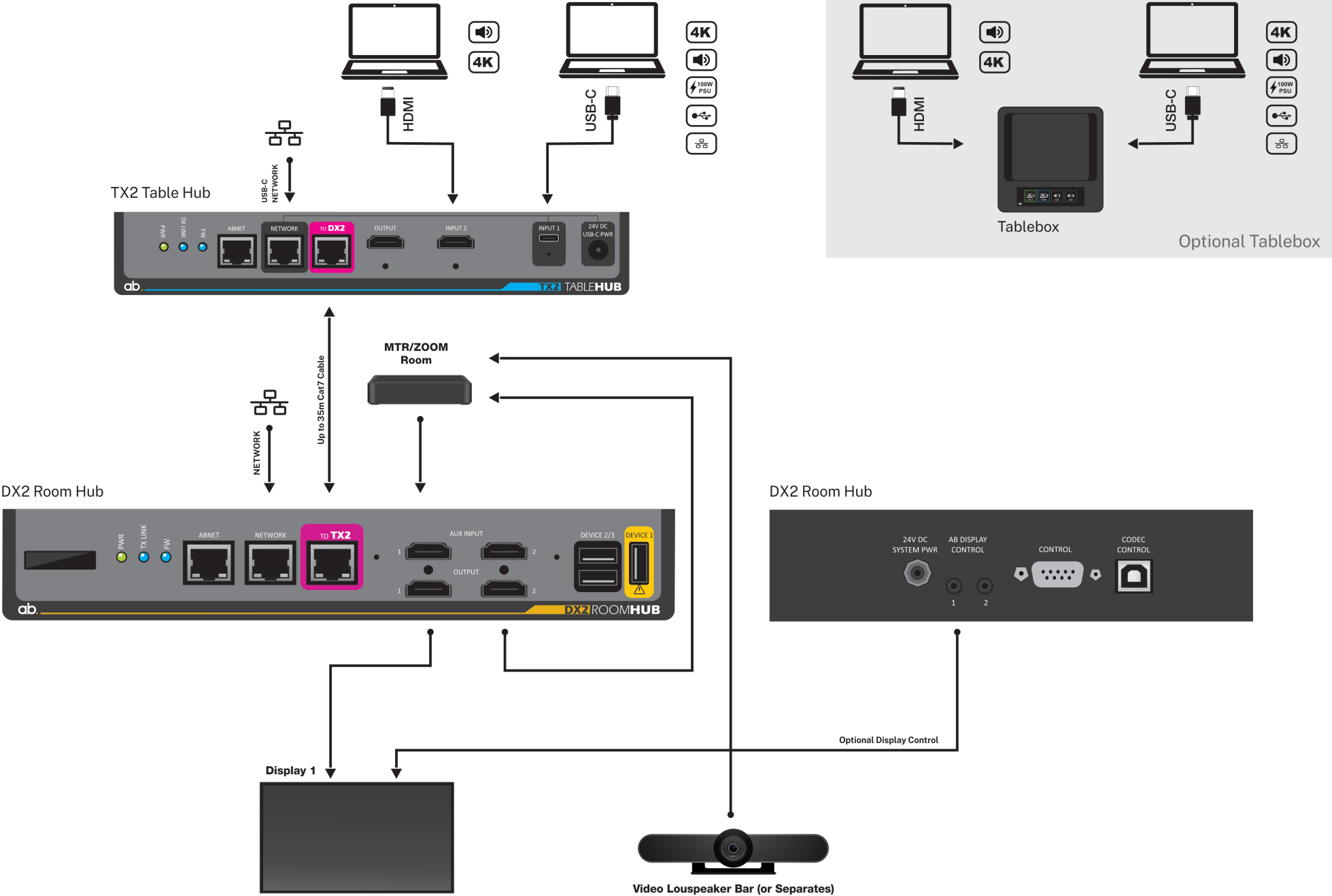
The DX2 is configured so that the DX2 Auxiliary Input 1 switches to Output 1, and onward to the Display.

The TX2 laptop inputs are routed to DX2 Output 2, and into the PC.

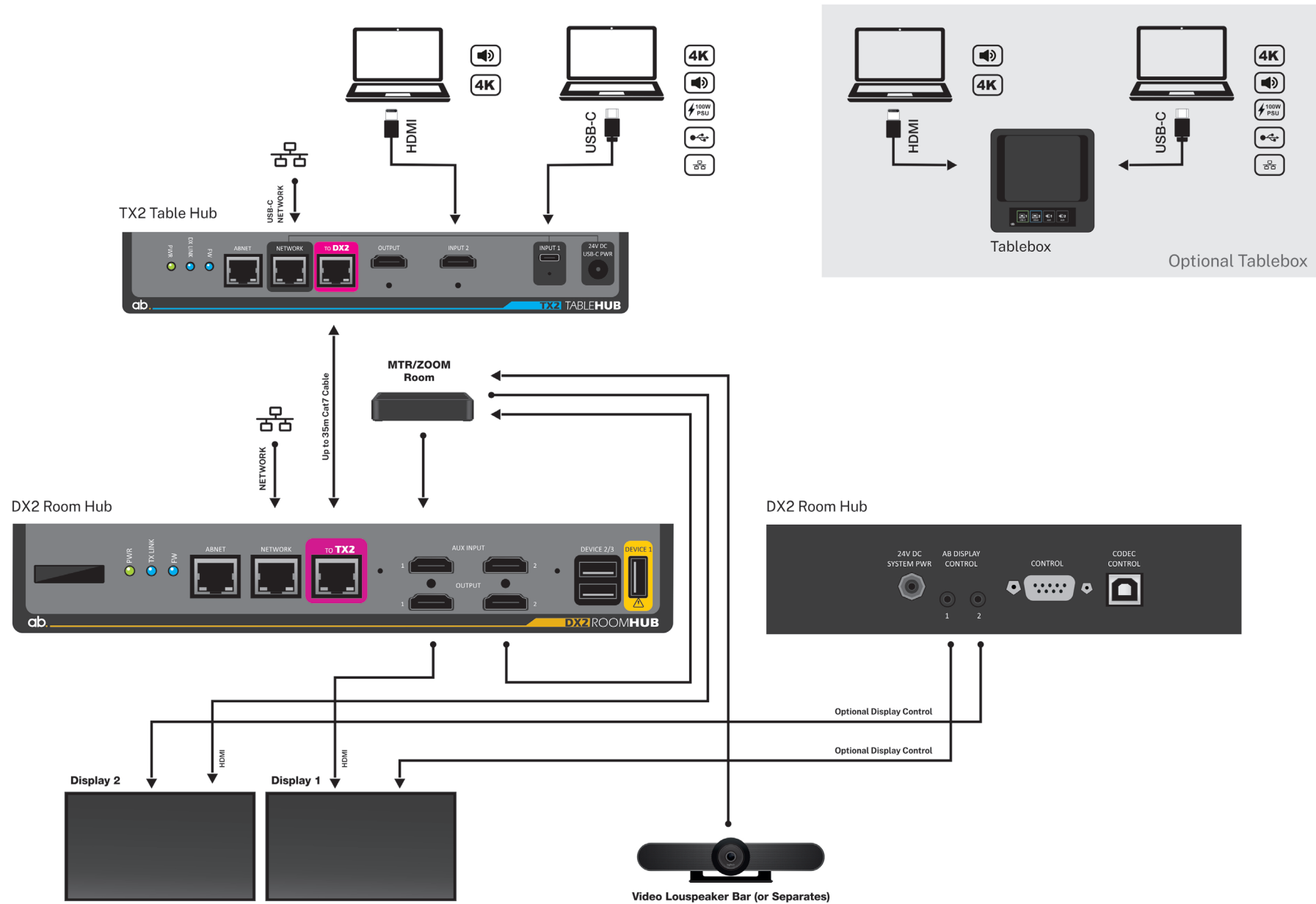
DX2 Auxiliary Input 1 has auto switching enabled, which means that when the PC wakes up, the Displays are turned on.

If a laptop is connected to the TX2, the image will appear on the Display via the PC ingest.

7.H VC Single Display System – MTR/Separates.



7.H VC Dual Display System – MTR/Separates.



8. Setup & Initial Power Up

8.A: Setup.

The TX2 Table Hub & DX2 Room Hub Interconnectivity System is fully configured and ready to use out of the box.

There are no additional drivers and/or configuration required prior to use. For the basic use case as shown in example 7E.

Once the TX2 & DX2, and peripherals, are connected and are powered up, the system is fully operational.

If problems are encountered, ensure all cables are routed and connected properly, and that each peripheral device is performing correctly.

8.B: Initial Power Up Sequence.

Note: This power up sequence should be run prior to the integration of any third-party hardware or peripheral.

Before powering up the system please ensure that the system is completely assembled and the wiring is correct.

Please follow these steps:

1. Connect a USB-C or HDMI input source to the TX2
2. Connect an HDMI output device to the DX2
3. Connect the TX2 to the DX2 with the supplied Cat7 cable
4. Connect the supplied power supply to the 24V PWR connection on the DX2

IMPORTANT NOTE

No image will be displayed until an active source is detected.

Initial Power Up

When the DX2 Room Hub and TX2 Table Hub are first powered up, the following LED sequence will occur:

- On both TX2 and DX2:
- PWR LED (green) will light to indicate the unit is powered
- FW LED (blue) will flash every 0.5 seconds
- TX2 Link or DX2 Link (blue) will light once the TX2/DX2 link has been established

Once the LCD display on the DX2 shows the IP address information, the unit is ready for use.

The above should take around 10 seconds.

8.C: Basic Operation.

The TX2/DX2 system has 4 inputs:

- 1. USB-C (TX2)
 - 2. HDMI (TX2)
 - 3. Auxiliary 1 (DX2)
 - 4. Auxiliary 2 (DX2)
- When the DX2 (powered) is linked to the TX2 with the supplied Cat7 interconnect cable, the last device with signal that is connected to any of the 4 inputs will be displayed via the HDMI on the DX2.
 - If using an Ashton Bentley Tablebox with Touch Panel, then all 4 inputs can be selected if the button attributes are set via the System Configuration tool.

9. System Configurator

9.A System Configurator Introduction.

The DX2 has a built-in web server which displays the System Configurator on your connected laptop/computer.

The System Configurator allows the complete set-up, together with firmware updates and simple control.

Settings:

- Set-up the auto switch settings
- EDID settings
- Turn CEC on/off
- Turn the scalers on/off
- Turn HDCP on/off
- Change the external control button settings
- Set-up the network
- Set-up the external management portal links
- Upload and save profiles
- Update firmware

Manual Controls:

- Manually switch the video matrixes
- Switch between operational Modes
- Turn Displays on/off
- Access the display menu system
- Turn the USB port hot-plug power on/off
- Perform a factory reset
- Reboot the system.

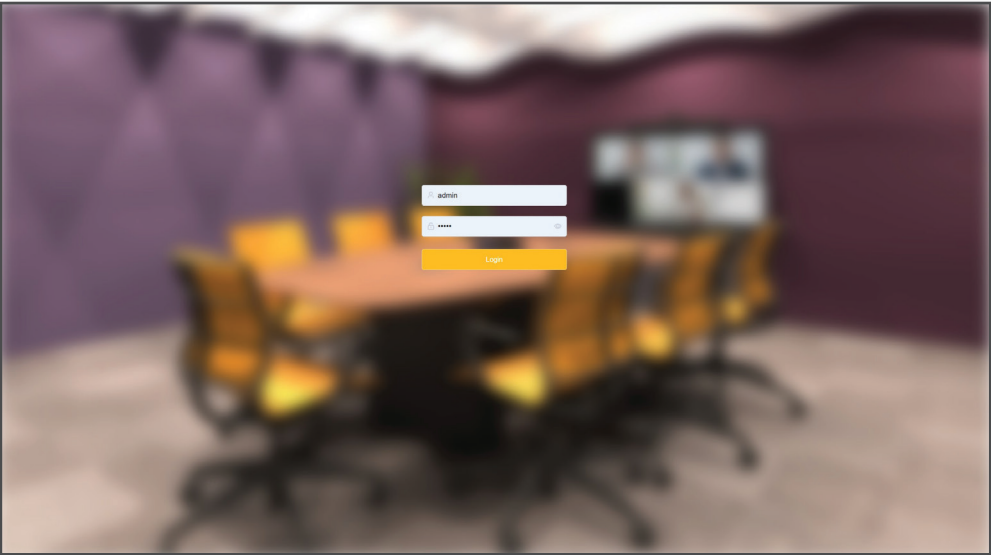
9.B Start System Configurator.

Connect a laptop/computer to the network port on the DX2. Open the browser and type in the default IP Address:

169.254.186.26

If the unit has been set for DHCP, please look at the DX2 information display -here the IP address will be shared. Please see Network page for further information.

Upon successful connection, the login screen will appear: (See Image opposite)



System Configurator Login Screen

The default username and password are:

Administration Mode:

User: admin

Password: admin

User Mode:

User: user

Password: user

We recommend changing the password which is accessed via the System page.

Admin

Has access to all settings, and can configure the DX2/TX2 system and upload profiles as required.

User

Has limited access to settings, as predetermined by Admin.

These tables outlines the different access/setting rights of Admin & User:

Settings Page	User	Admin
Display Type		•
Codec Control		•
CEC Control	•	•
Scaler	•	•
HDCP	•	•
TX2 Auto Switch settings	•	•
DX2 Auto Switch settings	•	•
TX2 EDID settings		•
DX2 EDID settings		•
Control Buttons	•	•

Mode Set-Up Page	User	Admin
All settings		•

Manual Control Page	User	Admin
All settings	•	•

Network Page	User	Admin
DX2 Network Settings	•	•
ABSee	•	•
Terminal		•
Outgoing sockets		•

Network Page	User	Admin
Device Name	•	•
System Config Upload/Download	•	•
Firmware Update	•	•
Factory Reset	•	•
Reboot	•	•
Password Security		•

Once successfully logged into the System Configurator, there are several pages which allow the complete set-up of the system.

9.C Settings Page.

The first page is the Settings Page for all of the global system settings.

The DX2 can control displays in two ways:

- CEC
- Serial

By default, CEC is enabled, and serial disabled.

Consumer Electronics Control (CEC)

Most displays implement CEC in some way; it is a very effective method for the DX2 to turn on/off displays with no serial control or additional cabling. The control is done through HDMI connection.

The DX2 uses standard CEC commands, they can be enabled or disabled.

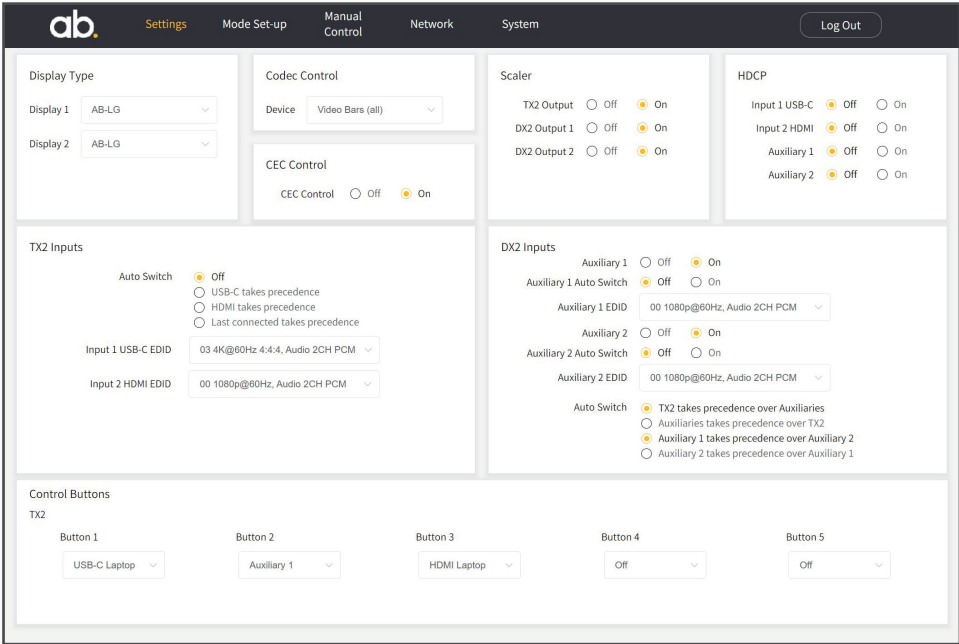
Note: On most professional displays CEC has to be specifically turned on, and sometimes an ID number has to be selected. If the display does not immediately respond to CEC commands, check the user manual for the settings. Some manufacturers have brand names for CEC that are not immediately obvious, for example LG has ‘Simplink’, Sony have ‘Bravia Sync’ and Samsung has ‘Anynet +’.

When CEC is disabled, serial commands are activated and sent to the displays -dependent on the Display Type selected.

The DX2 contains the serial control codes, so selecting the Display Type ensures the correct commands are sent. The control codes are sent according to the function settings in the Mode Set-Up.

Serial control has several advantages over CEC, one being that the displays are polled every few seconds and their status requested. If the input status is not correct because someone has manually changed the display, the DX2 will send a command to rectify this.

Serial control is also used as part of the remote monitoring tools (ABSee). The DX2 can issue a fault status alert if a display that is connected loses power, develops a serial port (or other) fault, or gets disconnected.



Settings Page

Display Type

The Display types listed are those presently supported. If the display you have isn't listed, please contact Ashton Bentley.

In a single Display system, always use settings for Display 1

Codec Control

The DX2 contains the control codes for various video conferencing codecs which can be connected to the 9 pin 'D' serial control port or the type 'B' USB control port (specifically designed for Cisco).

This allows complete automation of a system so that for example; a call comes into the codec, the codec signals the DX2 and the DX2 then turns the display(s) on and routes the codec video to them.

When the call ends and the codec goes to 'sleep', the DX2 receives a command from the codec and then turns the displays off.

Status of the codec is also communicated to an external monitoring tool using ABSee. This includes: call status; sleep/wake (Standby) status, microphone mute and various other attributes dependent on the codec's control API capabilities.

Scaler

The DX2/TX2 system has three video outputs, one on the TX2 and two on the DX2. Each output has an independent, high quality, video scaler that can convert Ultra High Definition 4K video down to 1080P High Definition. This allows the system to match to virtually any display without compromising video quality elsewhere in the system.

This is very useful where a laptop video signal is being routed to a large 4K display and a video conferencing codec at the same time. A lot of codecs only support 1080P whilst the display looks best with a 4K image. Using the DX2 scaler allows the full resolution video image to be displayed on the display whilst a scaled version is routed to the codec. The scaling is very high quality so the codec will not see any degradation in the signal.

Each scaler can be independently turned on and off as required. The default is on.

High-bandwidth Digital Content Protection (HDCP)

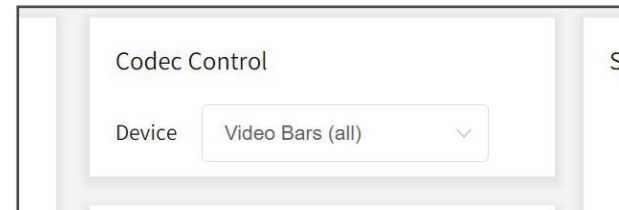
The TX2/DX2 system supports HDCP end-to-end across the signal chain, however most laptops do not implement HDCP and sometimes HDCP will prevent an image being displayed. It also slows down the time it takes for an image to appear after a source has been connected and during switching.

We recommend that HDCP is kept switched off (default) unless it's actually needed.

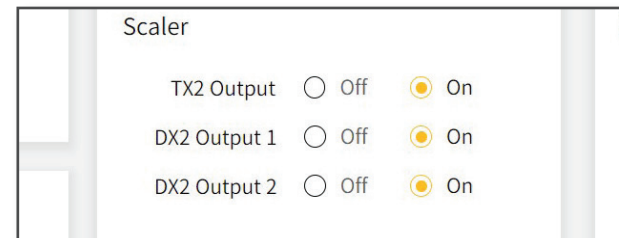
All inputs on the TX2 and DX2 can have HDCP turned on and off on an individual basis.



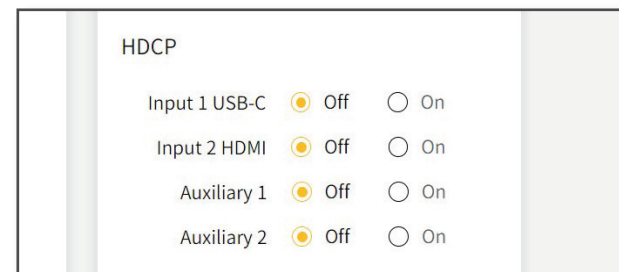
Display Type



Codec Control



Scaler



HDCP

TX2 Inputs

Settings for the USB-C and HDMI inputs on the TCX2.

Auto Switch. Select which input takes precedence over the other or turn auto-switching off completely. Auto-switching should only be turned off if the TX2 is being controlled by:

- Ashton Bentley Tablebox Touch Panel or Button Panel
- 3rd party control system

Default is ‘Last connected takes precedence.’

EDID (Extended Display Identification Data).

This is used to match the resolution of the display to the connected laptop.

When an input device is connected a small block of data is sent from the TX2 to the device. This data contains all the information regarding the resolution and aspect ratio that the TX2 and DX2 can support. The device then outputs the signal resolution and aspect ratio asked for, or a lower supported resolution.

The TX2 and DX2 can support any resolution that the HDMI 2 standard defines which is currently 4K60 4:4:4, so the limiting factor is the display that is connected to the output of the TX2 and DX2.

The TX2/DX2 have several standard EDID resolutions built in. It is also possible to ‘grab’ the EDID from a connected display.

32:9 Widescreen Mode

When used with the Ashton Bentley displays, the system can generate a widescreen image that is exactly two HD screens wide by one HD screen high (3840x1080), and map this to the two DX2 HDMI outputs. The Ashton Bentley displays then split the signal into two separate images, thereby displaying a single laptop image across a dual display system. This is perfect for Bring Your Own Device (BYOD) systems and users who want to display Microsoft Teams, or Zoom, across both displays.

Widescreen mode is set-up by selecting the correct EDID on the TX2 or DX2 input. It can be selected for any combination of inputs and will automatically control the Ashton Bentley displays.

Note, this feature is only available with Ashton Bentley displays.

21:9 Teams Front Row

If the DX2 is used in a system for Microsoft Front Row with a 21:9 aspect ratio display, the MTR PC needs to be adjusted to output a resolution of 2056x1080 pixels. If the MTR PC is connected via the DX2, this EDID setting can be used to force the MTR into outputting the correct resolution without any user intervention. This also ensures that following a reboot, the resolution will always be correct.

TX2 Inputs

Auto Switch

☒ Off

☐ USB-C takes precedence

☐ HDMI takes precedence

☐ Last connected takes precedence

Input 1 USB-C EDID

03 4K@60Hz 4:4:4, Audio 2CH PCM

Input 2 HDMI EDID

00 1080p@60Hz, Audio 2CH PCM

TX2 Inputs

DX2 Inputs

This section controls the two Auxiliary inputs on the DX2, including EDID selection and Auto Switching.

Each Auxiliary input can be turned On/Off to control the buttons that appear on a connected Ashton Bentley Tablebox Touch Screen. If the Auxiliary is switched On the button will appear, if not, it won't.

Auto Switching can be turned On/Off for each Auxiliary input. This is so that a PC waking up can cause the system to turn on while a source, such as a television tuner box which always outputs a signal, does not.

The Auto Switch selection is a little more complex on the DX2 than it is on the TX2 because it deals with all four inputs: USB-C & HDMI from TX2 and Aux 1 & 2 on DX2.

There are 4 options:

1. TX2 takes precedence over Auxiliaries (default)

When this option is selected, if one of the two Auxiliaries is currently being output from the DX2, then as soon as a signal is connected to the TX2 that will override the Auxiliary signal.

2. Auxiliaries takes precedence over TX2

When this option is selected, if one of the TX2 inputs is currently being output from the DX2, then as soon as a signal is connected to one of the Auxiliaries it will override the TX2 signal.

3. Auxiliary 1 takes precedence over Auxiliary 2

4. Auxiliary 2 takes precedence over Auxiliary 1

DX2 Inputs

Auxiliary 1

☐ Off
 ☒ On

Auxiliary 1 Auto Switch

☒ Off
 ☐ On

Auxiliary 1 EDID

00 1080p@60Hz, Audio 2CH PCM ▾

Auxiliary 2

☐ Off
 ☒ On

Auxiliary 2 Auto Switch

☒ Off
 ☐ On

Auxiliary 2 EDID

00 1080p@60Hz, Audio 2CH PCM ▾

Auto Switch

☒ TX2 takes precedence over Auxiliaries
 ☐ Auxiliaries takes precedence over TX2
 ☒ Auxiliary 1 takes precedence over Auxiliary 2
 ☐ Auxiliary 2 takes precedence over Auxiliary 1

DX2 Inputs

Control Buttons

Both the TX2 and the DX2 can connect (through the ABNET port) to an Ashton Bentley Touch Panel.

This section allows you to assign different functionality to each button.

The options are:

Off

Button does not function, or appear on the Touch Panel.

USB-C Laptop

Selection of USB-C laptop. Functionality is set-up in Modes Set-Up (Section 9.D)
Input 1 USB-C

HDMI Laptop

Selection of HDMI laptop. Functionality is set-up in Modes Set-Up (Section 9.D)
Input 2 HDMI

Auxiliary 1

Selection of Auxiliary 1. Functionality is set-up in Modes Set-Up (Section 9.D)
Auxiliary 1

Auxiliary 2

Selection of Auxiliary 2. Functionality is set-up in Modes Set-Up (Section 9.D)
Auxiliary 2

BYOD control

If the optional UX is connected to the system, the selected host port on the UX changes when the BYOD button is pressed. If no UX is detected, BYOD will control the 5V power on USB device ports 2 and 3.

Available Button States

Button 1:

- Off
- USB-C

Button 2:

- Off
- HDMI
- Aux 1

Button 3:

- Off
- Aux 1

Button 4:

- Off
- Aux 2
- BYOM

Button 5:

- Off
- BYOM

The available layouts are therefore:

- 2 Button (USB-C, HDMI)
- 2 Button (USB-C, Aux1)
- 2 Button (HDMI, Aux1)
- 2 Button (USB-C, BYOM)

- 3 Button (USB-C, HDMI, Aux1)
- 3 Button (USB-C, Aux1, Aux2)
- 3 Button (HDMI, Aux1, Aux2)
- 3 Button (USB-C, HDMI, BYOM)
- 3 Button (USB-C, Aux1, BYOM)

- 4 Button (USB-C, HDMI, Aux1, Aux2)
- 4 Button (USB-C, HDMI, Aux1, BYOM)
- 4 Button (USB-C, Aux1, Aux2, BYOM)

- 5 Button (USB-C, HDMI, Aux1, Aux2, BYOM)

Control Buttons

TX2

Button 1

USB-C Laptop

Button 2

Auxiliary 1

Button 3

HDMI Laptop

Button 4

Off

Button 5

Off

Control Buttons

9.D Mode Set-Up Page. *(Not available in User Login)*

This allows for the complete set-up of the end-to-end signal routing, display control and USB power control functions (Hot Plug Detect) and codec control within the system.

To understand how this works, we need to outline our concept of Modes. At any one time the DX2 can be in one of six Modes.

At the top of the page there are Tabs for each of the Modes, and these are grouped with the four physical Modes (inputs) on the left and the 2 virtual Modes on the right:



For each Mode all the function options below can be individually defined. Therefore, when the system switches from one Mode to another, the complete set-up of the system can change.

Switching from one Mode to another is triggered by a physical event, such as a laptop being connected to an input, the codec waking up or the user pushing a button on the Tablebox Touch Panel.

As the DX2 switches from one Mode to another, it triggers one or more of the functions shown below. Trigger functions are individually configured for each Mode.

Display Control			
Display 1 Input	Display 2 Input	Display 1 Power	Display 2 Power
HDMI 1	HDMI 1	On	On
HDMI 2	HDMI 2	Off	Off
HDMI 3	HDMI 3		
DP	DP		
No Change	No Change		

The screenshot shows the Mode Setup Page with the following sections:

- Display Control:**
 - Display 1 Input: HDMI 1
 - Display 2 Input: HDMI 1
 - Display 1 Power: On
 - Display 2 Power: On
- Matrix:**
 - TX2 HDMI Routing: USB-C
 - TX2 to DX2 Routing: USB-C
 - DX2 Output 1 Routing: TX2
 - DX2 Output 2 Routing: TX2
- UX Control (External Device on ABNET):**
 - Port Power: On
 - Host Select: A
 - Toggle Power: Yes
- Codec Control:**
 - Hang Up: No
 - Wake Codec: Yes
 - Send VC Pres: Yes
 - Stop VC Pres: No
 - Sleep Codec: No
 - Codec Mute On: No
 - Codec Mute Off: No
- DX2 USB Hub:**
 - Port Power: On
 - Toggle Power: Yes

A Save button is located at the bottom right.

Mode Setup Page

The screenshot shows the Display Control section of the Mode Setup Page with the following configuration options:

- Display 1 Input: HDMI 1
- Display 2 Input: HDMI 1
- Display 1 Power: On
- Display 2 Power: On

Display Control

Matrix			
TX2 to DX2 Routing	TX2 HDMI Routing	DX2 Output 1 Routing	DX2 Output 2 Routing
Off	Off	Off	Off
No Change	No Change	No Change	No Change
USB-C	USB-C	Aux 1	Aux 1
HDMI	HDMI	Aux 2	Aux 2
		TX2	TX2

Codec Control						
Hange Up	Wake	Send VC	Stop VC	Sleep	Codec	Codec Mute
Yes	Yes	Yes	Yes	Yes	Yes	Yes
No	No	No	No	No	No	No
	No Change	No Change	No Change		No Change	No Change

UX control (external box on ABNET)		
Port Power	Host Select	Toggle Power
On	A	Yes
No Change	B	No

Matrix

TX2 HDMI Routing

USB-C

▼

TX2 to DX2 Routing

USB-C

▼

DX2 Output 1 Routing

TX2

▼

DX2 Output 2 Routing

TX2

▼

Codec Control

Codec Control

Hang Up

No

▼

Sleep Codec

No

▼

Wake Codec

Yes

▼

Codec Mute On

No

▼

Send VC Pres

Yes

▼

Codec Mute Off

No

▼

Stop VC Pres

No

▼

Codec Control

UX Control (External Device on ABNET)

Port Power

On

▼

Host Select

A

▼

Toggle Power

Yes

▼

UX Control

DX2 USB Hub

Why is USB power control important?

The USB port contains four wires: two data, 5V power and ground. We are interested in the 5V power.

When a device such as a camera or speaker-bar are connected to the host laptop or computer, enumeration takes place. The device capability information is passed to the host so that the host knows what the device is, and what drivers to load to make it work. This enumeration is triggered by the device seeing the 5v power on the USB connector. This is called ‘Hot Plug Detect’.

Many USB extender and hub products have the 5V powered all the time, which is fine because the camera or speaker-bar is physically plugged in and out. However, in a meeting room system the device is plugged in all the time, and the laptop at the other end is plugged in and out.

The net result is that many camera and speaker-bar devices do not enumerate when the laptop is plugged in. They will work the very first time the system is powered on, but then won’t

Other devices such as the Poly Studio series use the 5V as a trigger to go into device mode and as the 5V never drops they just stay in device mode.

The DX2 has control over the built in USB hub allowing the 5V to be turned on and off as required. The on/off states can be individually selected for each operational Mode.

In addition to this, there is also the ‘Toggle Power’ option. When On if the DX2 switches between two Modes where port power is turned On, it will momentarily drop the 5V power then turn it back on again. This ensures that the connected device will always re-enumerate when switching Modes. This is less important when the TX2 and DX2 are used on their own but is required when using the external Ashton Bentley UX USB switch which allows two hosts to be switched between multiple devices.

Note on Modes

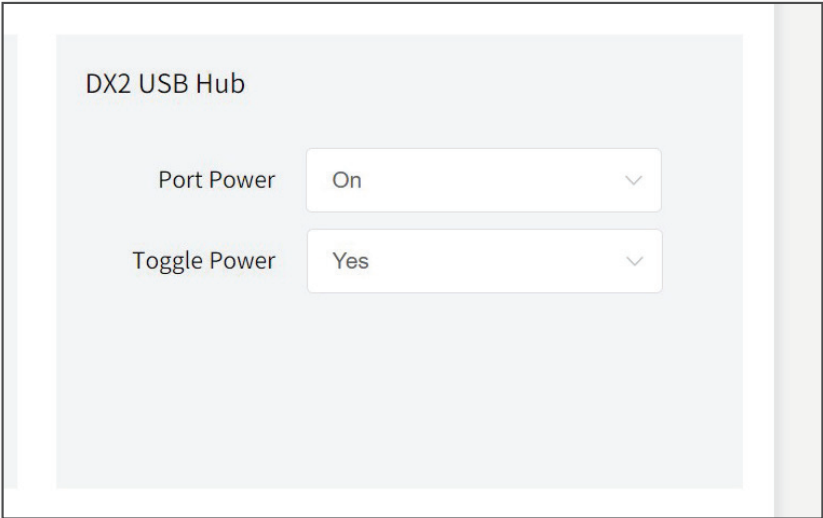
When finished, the configuration of the system can be downloaded. See Systems Page 9.H

The system can be restored to a default state by pushing the ‘factory reset’ button on the System page.

This is an extremely powerful and flexible system, and it allows complex system designs to be implemented without any programming or the need for any external control hardware. It is even possible to route signals when the DX2 turns off. This allows a use case where, for example a digital signage player is routed to the display when nothing else in the meeting room is happening.

It is sometimes useful not to change the input on a display when a Mode changes so this is accomplished using the ‘no change’ option.

You can also control how an optional connected Ashton Bentley UX USB Switch functions.



DX2 USB Hub

USB Hub	
DX2 Port Power	DX2 Toggle
On	Yes
Off	No

Factory default settings are:

Display Control					Matrix				UX control (external box on ABNET)		
Mode	Display 1 Input	Display 2 Input	Display 1 Power	Display 2 power	TX2 HDMI Routing	TX2 - DX2 Routing	DX2 Output 1 Routing	DX2 Output 2 Routing	Port Power	Host Select	Toggle Power
Off	No Change	No Change	Off	Off	Off	Off	Off	Off	Off	Yes	Yes
Laptop USB	HDMI 1	HDMI 1	On	On	USB-C	USB-C	TX2	TX2	On	Yes	Yes
Laptop HDMI	HDMI 1	HDMI 1	On	On	HDMI	HDMI	TX2	TX2	On	Yes	Yes
User Mode 1	HDMI 1	HDMI 1	On	On	Off	Off	Aux 1	Aux 1	On	Yes	Yes
User Mode 2	HDMI 1	HDMI 1	On	On	Off	Off	Aux 2	Aux 2	On	Yes	Yes
Video Conferencing	HDMI 2	HDMI 2	On	On	Off	Off	Aux 2	Aux 2	On	Yes	Yes

Codec Control						
Hang Up	Wake Codec	Send VC	Stop VC	Sleep Codec	Codec Mute On	Codec Mute Off
Yes	No	No	Yes	Yes	No Change	No Change
No	Yes	Yes	No	No	No Change	No Change
No	Yes	Yes	No	No	No Change	No Change
No	Yes	Yes	No	No	No Change	No Change
No	Yes	Yes	No	No	No Change	No Change
No	Yes	No Change	No Change	No	No Change	No Change

DX2 USB Hub	
DX2 Port Power	DX2 Toggle Power
Off	Yes
On	Yes
On	Yes
On	Yes
On	Yes
On	Yes

Please remember to press ‘Save’ after each Mode set-up”

9.E Manual Control Page.

In most instances manual control is not necessary if the automatic switching has been correctly set-up, however when configuring the system initially or undertaking diagnostics, being able to manually control the systems is very useful.

Video Switching

Manual control of the matrixes in the TX2 and the DX2.

Inputs are down the left:

TX2

- USB-C
- HDMI

DX2

- From TX2
- Auxiliary 1
- Auxiliary 2

Outputs on the top:

- TX2 Out
- DX2
- DX2 Out 1
- DX2 Out 2

As each button is pressed, the matrix will switch the corresponding input. Note that the link between the TX2 and the DX2 is one directional as far as video is concerned, and so it is not possible to send the Auxiliary signals from the DX2 to the output on the TX2. Only one video signal at a time can be sent between the Tx2 and DX2.

Mode Switching

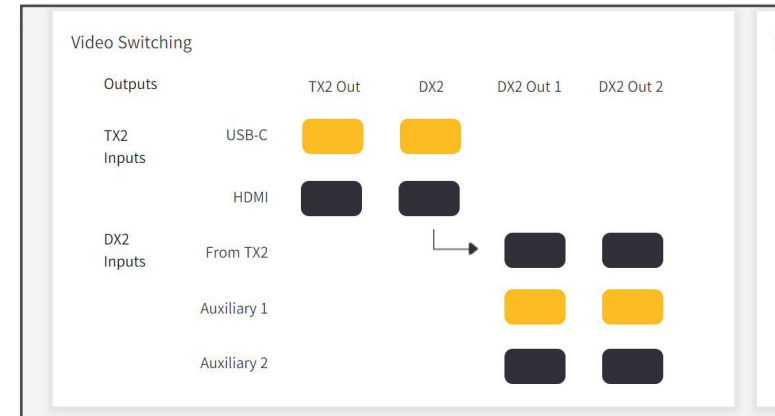
The complete system Mode can be changed by pressing a button. See the section above for an explanation of how Modes work.

Display Control

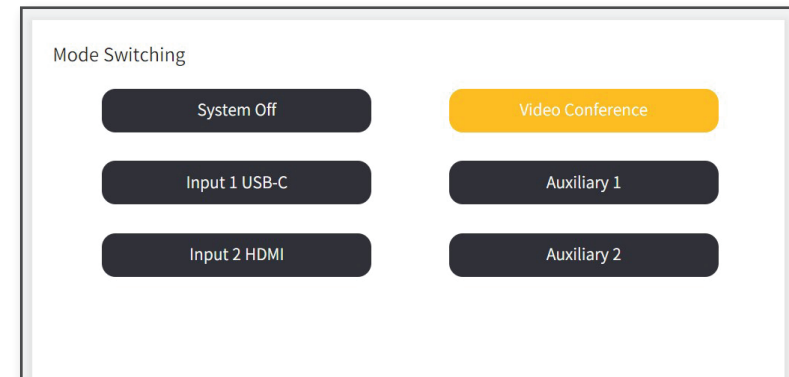
If a video display is connected to the DX2 via the serial control ports, then it is possible to control the display from here. This is useful for accessing the display's menu system at installation time. Displays can also be turned on and off, and inputs switched. Some functions are available to displays using CEC, however functions vary between different displays and CEC itself is limited.

DX2 USB Port Power

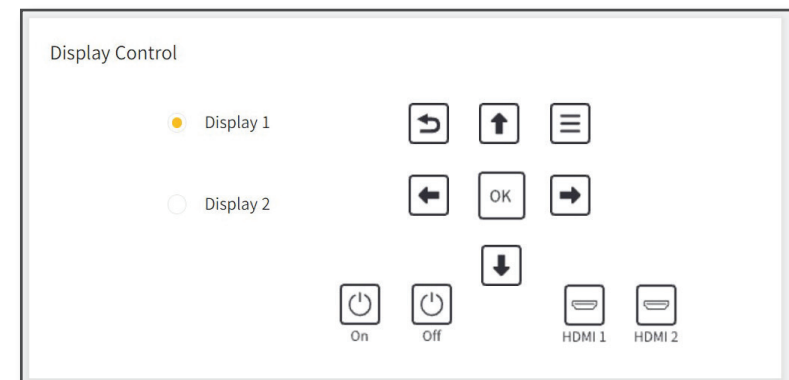
These buttons are used to manually turn the power on the DX2 USB hub on and off. This can be useful in diagnostic testing and Mode set-up to establish how and when a connected device enumerates.



Video Switching



Mode Switching



Display Control

9.F Network Page.

A static network TCP/IP address can be assigned if required, or the DX2 set for DHCP.

The default IP address of the DX2 is 169.254.184.26. This address falls within the automatic range set by Windows and Apple Macs when no DHCP address is obtained. When a cable is connected directly between the DX2 and a laptop, it should be possible to connect to the DX2, without making any changes to the laptop network configuration.

Note: The IP address of the DX2 is presented on its display screen.

ABSee

ABSee is the Ashton Bentley platform that enables the DX2 to make a connection to an external network or cloud-based server. Various 3rd party platforms are supported, and these are continually evolving so please check with the supplier or Ashton Bentley support for further details.

ABSee is off by default.

TCP/IP port and the IP address of the server can also be set. The DX2 can make a secure SSH connection if this is supported by the server.

Device Port

The DX2 is able to make TCP/IP connections to other devices such as codecs or microphones. Please check with the supplier or Ashton Bentley support for further details on this feature.

Terminal

Please check with the supplier or Ashton Bentley support for further details on this feature.

ABSee

ABSee

☐ Off

☐ On

Use SSL

☐ Off

☐ On

Server Port

Server Address

ABSee

Device Port

Device Port

☐ Off

☐ On

Use SSL

☐ Off

☐ On

Server Port

Server Address

Device Port

Terminal

Use SSL

☐ Off

☐ On

Terminal



Settings

Mode Set-up

Manual
Control

Network

System

Log Out

9.G System Page.

Device information

In this section the system name is displayed and can be changed. The MAC address of the network interface is also displayed here.

System Config

Once a complete system configuration has been defined, it can be saved to an external file for future reference or used to program other DX2 units. We recommend that configurations are saved as a backup for future use, or for reference if technical support is required.

Factory Reset

It is sometimes necessary to return the TX2 and DX2 to a known state. If this is required press the factory reset button, you will be asked to confirm this selection.

Reboot

The TX2 and DX2 can be rebooted from here if required. Once again it is necessary to reconfirm your selection.

Security

Passwords for Admin and User access to the System Configuration tool can be changed here. We recommend that passwords are changed after installation.

Firmware

This shows the current versions.

There are three firmware files that can be uploaded: TX2, DX2 and the Webserver which drives the System Configurator. After a web server update it is necessary to shut your browser down and establish a new connection.

Firmware should only be uploaded if advised by Ashton Bentley technical support. We recommend that the config file is downloaded before the firmware update and if available, the web server firmware should be applied first.

Take care to upload the correct firmware to the correct unit, or the system will not function. Check the resource page on the Ashton Bentley website (www.ashtonbentley.com). For the latest firmware versions.

Logout

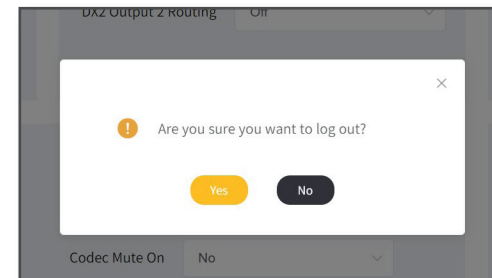
To exit the System Configurator, press the 'Log Out' tab.

The screenshot shows the 'System' tab selected in the top navigation bar. The page is divided into four main sections:

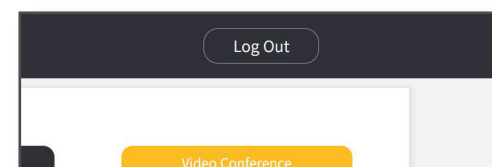
- Device Information:** Contains fields for 'System Name' (ABTXDXV2_RX) and 'DX MAC address' (8C:1F:64:8B:5C:18), with a 'Save' button.
- Security:** Contains fields for 'Administrator Password' and 'User Password', with a 'Save' button.
- System Config:** Contains a 'Config File' field with a 'Browse' button, and 'Download' and 'Upload' buttons.
- Firmware:** Displays current versions for TX2 (V1.0.0 2022.9.22), DX2 (V01.00.01), and Web UI (V1.0.3 2022.11.14). It includes radio buttons for 'Firmware Upgrade' (TX2, DX2, Web UI) and an 'Upload' button.

At the bottom, there is a 'Device' section with 'Factory Reset' and 'Reboot' buttons.

System Setup Page



Reboot Dialogue Box



Logout Menu tab

10. Technical Resource

10.A TX2 Table Hub – Technical.

Video Matrix

- 4K Video uncompressed video/audio
- High Speed
- 1080p or 4K @ 60 Hz 4:4:4
- 16 Gb/s

To DX2

- Output to DX2 via single Cat6a / Cat7 cable supporting:
 - Audio/Video
 - Control
 - Power
 - USB

Video Inputs

- 1 x HDMI
- 1 x USB-C
- Inputs have integrated equaliser for improved signal integrity
- Signal auto sensing on all inputs
- HDCP can be disabled, to remove HDCP issues with VC codecs
- EDID can be selected from presets or copied from connected display via the built-in System Configurator setting page.

Video Output

- 1 x HDMI
- Output routing is configurable in System Configurator to be either HDMI or USB-C video.
- Output switching can be automatic (on connecting a source) or manual via the Tablebox touch panel

HDMI:

- Up to 4K @ 60 Hz 4:4:4 8 bit uncompressed HDMI 2.0 video/audio
- Supports HDCP 2.2 (Can be disabled if needed)
- 16 Gb/s video data output to DX2

USB-C:

- Up to 4K @ 60 Hz 4:4:4 8 bit uncompressed HDMI 2.0 video/audio
- USB Power delivery 2.0 (device charging up to 20v @5 A (100W)), requires optional USB-C Charging Power Supply (Part No. 900-00585)
- USB 2.0 with up to 350 Mbit/s data rate
- Integral USB-C to 10/100/1000BaseT Ethernet port

Audio

- HDMI embedded audio

ABNET (Control)

- ABNET™ expansion bus for Tablebox Touch Panel

Power

- Powered by POC from DX2 unit
- USB-C power provided by local 24v 120W PSU)
Requires optional USB-C Charging Power Supply (Part No. 900-00585)

Environmental

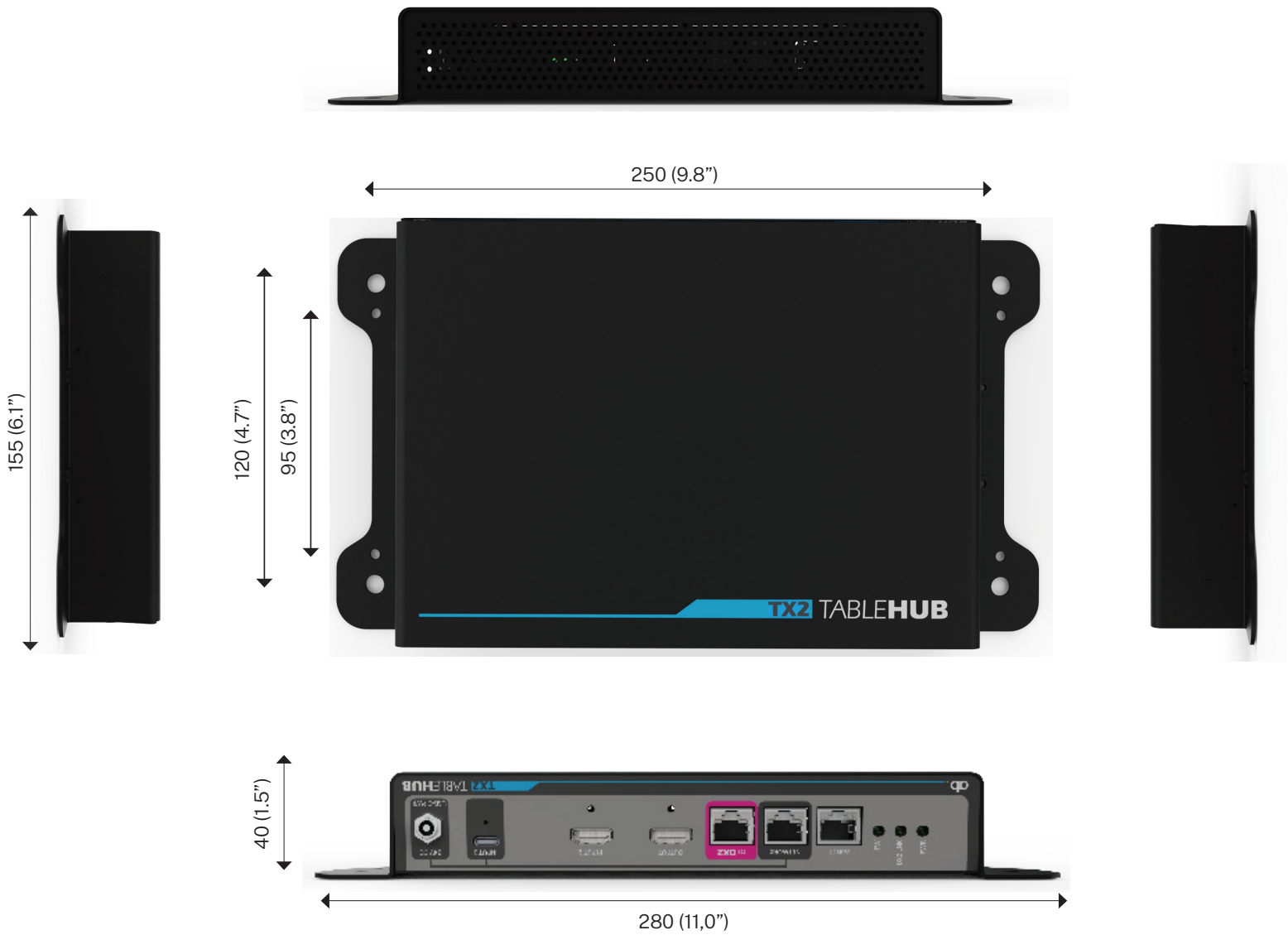
- Operating Temperature Range 0 – 45 degrees C
- Operating Humidity 10% to 90% non condensing

General

- Warranty 3 Year

10.B TX2 Table Hub – Mechanical.

Product Shipping Weight
1kgs



10.C DX2 Room Hub - Technical Overview.

Video Matrix

- Maximum Pixel Clock Frequency Range: 600 MHz
- Video Resolution: up to 4K2K@60 4:4:4 8 bit
- Compliant to HDMI 1.4 and HDMI 2.0 specifications
- Supports HDCP 1.4/2.2 (can be disabled if needed)

To TX2

- Input from TX2 via single Cat6a / Cat7 cable supporting:
 - Audio/Video
 - Control
 - Power
 - USB

Video Inputs

- 2 x AUX HDMI
- Inputs have integrated equaliser for improved signal integrity
- Signal auto sensing on all inputs
- HDCP can be disabled, to remove HDCP issues with VC codecs
- EDID can be selected from presets or copied from connected display via the built-in System Configurator setting page.

Video Output

- 2 x HDMI
- Output routing is configurable in System Configurator to be either TX2 signals or local signals
- Output switching can be automatic (on connecting a source) or manual via the Tablebox touch panel

HDMI:

- Up to 4K @ 60 Hz 4:4:4 8 bit uncompressed HDMI 2.0 video/audio
- Supports HDCP 2.2 (can be disabled if needed)
- 16 Gb/s video data input from TX2

Ethernet

- 100BaseT Ethernet port with interfaces for:
 - Web GUI configuration
 - ABSEE remote support and monitoring system
 - Device Port
 - Diagnostic terminal

Audio

- HDMI embedded audio

Control

- ABNET™ expansion bus for Tablebox Touch Panel, UX or other Ashton Bentley peripherals.
- 2 x Display Control -3.5mm jacks
- Serial Codec Control -9 Pin D-type
- USB Codec Control -USB Type B

ABNET (Control)

- ABNET™ expansion bus for Tablebox Touch Panel

LED Display

- Displays current IP address, subnet and gateway addresses.
- Displays TX2 and DX2 firmware versions

Power

- Powered by an external 24v 65W power supply (supplied)
- Supplies POC to power TX2 unit (• (an optional USB-C Charging Power Supply (Part No. 900-00585) is needed for USB power delivery on the TX2)

Environmental

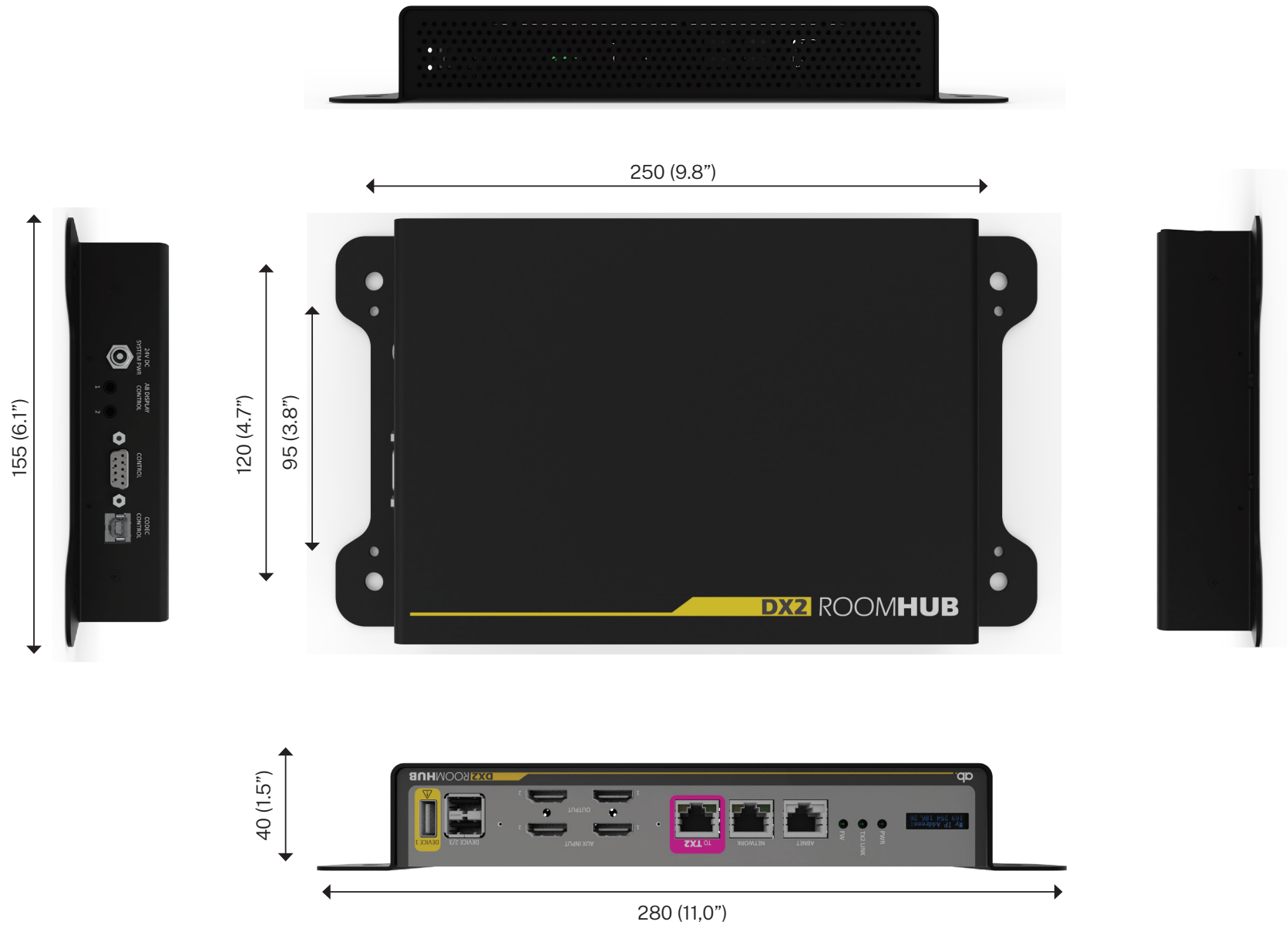
- Operating Temperature Range 0–45 degrees C
- Operating Humidity 10% to 90% non condensing

General

- Warranty 3 Year

10.D DX2 Room Hub – Mechanical.

Product Shipping Weight
1kgs



11. Important Safety Information

11.A: Important Safety Instructions.

PLEASE READ AND SAVE THIS INFORMATION

When using your Ashton Bentley equipment, the following information and precautions should always be followed to reduce the risk of damage, fire, electric shock or injury to people. If in any doubt about installation, operation or maintenance please contact your vendor or Ashton Bentley.

Follow all warnings and instructions marked on the equipment.

Allow plenty of space in the construction area and remove cartons and any packaging materials before assembly.

The system must be placed in an indoor, dry location. Never operate the system outdoors or very humid conditions. Never allow ingress of fluid of any sort.

To avoid a trip hazard do not lay loose cables across a floor. Always use suitable cable management or install under a raised floor.

Do not block or cover any ventilation vents in the products

11.B TX2 & DX2 Specific Safety Information

The TX2 and DX2 are a closed system, they are not designed to work with any other extender product and should only be used together.

The architecture between the original TX, DX, and the TX2 and DX2 are different and are not compatible with each other. Do Not plug a TX2 into a DX or product failure may occur. This will invalidate the warranty. Do not plug the TX2 or the DX2 into any other extender product from any manufacturer as product failure may occur, and this will also invalidate the warranty.

The TX2 is powered by the DX2, however it also has a power port for charging a laptop via the USB-C port. The power connectors on the DX2 and TX2 are the same and no damage will occur if the TX2 power supply is connected to the DX2, however the DX2 power supply is not powerful enough to charge a laptop and should not be used for this purpose.

The original DX used a 56V power supply, the DX2 uses a 24V power supply. A DX power supply must not be connected to a DX2 otherwise damage to the product will occur and this will invalidate the warranty.

The TX2 and DX2 are designed for internal use only.

The TX2 ships with a CAT7 shielded cable for connection to the DX2. This cable has been designed to work with the system and will carry the 18Gbit/s data rate that the system uses.

Other cables are not recommended, however, if it is necessary to make a cable on site, it is important that the cable is high quality CAT7 grade designed for HDBaseT and is terminated correctly including the shield.

11.C Electrical

Where the incoming mains electrical feed is unstable or prone to transient input voltage spikes more than 1KV, Ashton Bentley highly recommends the use of a surge protection device connected to the power input cable.

As with any electronic device, pay close attention to the product when it is turned on.

If any of the following are noticed, then do not use the product until everything is back to a fully safe state:

- Power cables, plugs, power supplies/adapters, extension cords, surge protectors that are cracked, broken, or damaged.
- Signs of overheating, smoke, sparks, or fire.
- Signs that liquid has been spilled or an object has fallen onto the electronic elements of product, the power cable, or power supply/adapter.

Note: If you notice these conditions with a product that is not supplied by Ashton Bentley, disconnect from the Ashton Bentley product, and stop using that product until you can contact the product manufacturer for further instructions, or until you get a suitable replacement.

Never wrap a power cable around a power supply/adapter or other object. Always route power cables so that they will not be walked on, tripped over, or pinched by objects.

Do not use any power supply/adapter that shows corrosion at the ac input pins or shows signs of overheating (such as deformed plastic)

Note: The power cable and supply/adapter provided with this product are intended to be used with this product only. Do not use them with any other products. Only use the supply/adapter provided with the product. The use of 3rd party power supplies/adaptors will invalidate the warranty.

For your safety, Ashton Bentley provides a power cable with a grounded attachment plug.

Do not use your system during a lightning storm.

Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.

12. Environmental Policy

Environmental Policy.

Through careful design and selection of materials, Ashton Bentley is committed to designing and manufacturing products that minimise the effect on the environment.

Materials and Manufacture

All Ashton Bentley products are manufactured primarily from natural base metals with a minimum number of treatments and finishes applied. This product design, with a view to managing the future recycling process, allows most product components to easily be disassembled, recycled and re-used without the use of specialist equipment.

Ashton Bentley products are on average made from >98% recyclable materials. Ashton Bentley continue to develop design and manufacturing processes that minimise raw materials used whilst endeavoring to increase the percentage of materials that can be easily recycled and re-used.

Packaging

Ashton Bentley packaging has been designed to use the minimum amount of material required to provide protection of the product during transport and shipping.

Where possible we have used recycled materials and all parts of our product packaging can be easily recycled or retained for future use.

Recycling Ashton Bentley

All Ashton Bentley products have been designed to provide many years of trouble-free service, however, when the time comes to dispose of your system, Ashton Bentley offer a fully inclusive program under the European WEEE directive 2012/19/EU and its subsequent amendments.



13. Warranty

Warranty Overview.

All Ashton Bentley products are designed and manufactured to the highest possible standards providing customers with many years of trouble-free service.

Our aim is to provide high-quality, low-cost solutions that can be used and managed day-to-day with the minimum effort.

Because things do occasionally go wrong Ashton Bentley warrants that its products shall conform to the applicable published and/or agreed upon operational specifications and shall be free from defects in material, workmanship, and functionality for a period of 3 years after the date of purchase.

This warranty cover provides:

- 3 Years -Return to Base. Repair or Replace

The warranty services will be managed and provided by an Ashton Bentley approved service partner who is fully supported by Ashton Bentley.

Return to Base. Return And Repair

Our warranty provides “Return to Base cover for a period of three years from the date of purchase. Any system, or part of a system, identified as faulty will be repaired or replaced at our UK facility or by our local service partner from whom the system was purchased.

No charge will be made for this repair or replacement providing that the faulty system/ component be correctly packaged and returned.

Our warranty is intended to provide customers with a transparent repair or replacement service if things go wrong, however, please note that our warranty does not include the following:

- Cosmetic damage where it does not affect the operation or safety of the product.
- Charges for repairs undertaken by any other party.
- The cost of repairing or replacing a product which fails because anyone neglects, abuses, or misuses the product.
- In operability of a product caused by the failure of services provided by a third party
- Theft or any loss suffered if you cannot use the product or any loss other than repair or replacement.

Where items have been returned to us and are found to have been subject to any of the above, we reserve the right to charge for the repair or replacement and all costs incurred to return the item.

Note: Any repaired or replaced product shall not extend the originally established warranty period. This express warranty relates to the original end-user purchasing the product and is not assignable or transferable to any other party or subsequent purchasers, unless otherwise agreed in writing by Ashton Bentley. The terms of Ashton Bentley “Total Cover Warranty” do not affect your statutory rights, the right to charge for the carriage, appropriate repair and testing or a replacement unit.

Process:

1. When a unit is purchased the customer, or the service partner on behalf of the customer, will complete the Ashton Bentley warranty registration documentation and forward this by e-mail to Ashton Bentley in the UK.
2. Should a fault occur you simply report the fault to Ashton Bentley or your local service partner from whom the unit was purchased giving them your product registration details. The service partner will then contact you to gain as much information about the nature of the fault as they can and facilitate a resolution remotely if possible.
3. Should that not be possible the faulty system or component will be identified, and you are requested to suitably pack and return the faulty system or component back to Ashton Bentley facility in the UK or your local service partner at your cost.
4. On receipt, the unit will be inspected, and we will either carry out a repair or supply a replacement and return to the service partner or to the site.
5. Return carriage costs will be covered by Ashton Bentley however any local import duties/ taxes will be your responsibility.

Want to know more?

Ashton Bentley Collaboration Spaces Ltd
www.ashtonbentley.com | spaces@ashtonbentley.com | +44 (0)207 100 1200

© 2011-2023 Ashton Bentley Group limited. All rights reserved. Ashton Bentley®, the Ashton Bentley logo and the names and marks associated with Ashton Bentley's products are trademarks and/or service marks of Ashton Bentley Collaboration Spaces and are registered and/or common law marks in the United States and various other countries. All other trademarks are property of their respective owners. No portion hereof may be reproduced or transmitted in any form or by any means, for any purpose other than the recipient's personal use, without the express written permission of Ashton Bentley.

Illustrations in this document might look different from your product
Content is subject to change without notice
3rd party manufacturers may make periodic changes to the operational behavior and features of their product(s). Please refer to their resources for the latest information.