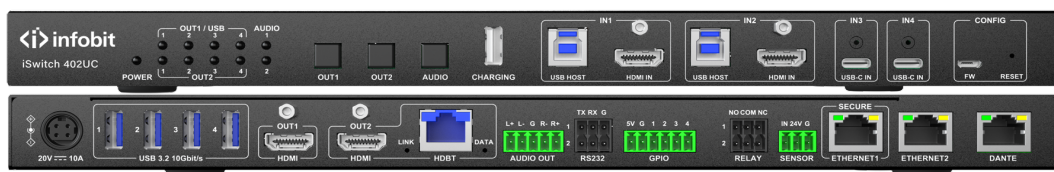


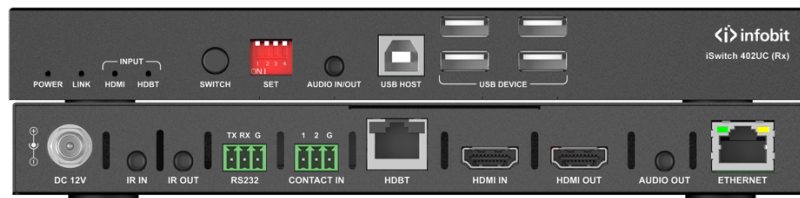
iSwitch 402UC

4K60 4x2 UC Switcher with Dante

Datasheet V1.0



iSwitch 402UC (TX)



iSwitch 402UC (RX)

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1. ISWITCH 402UC (TX)

1.1 OVERVIEW

The **iSwitch 402UC (TX)** is a 4x2 conference presentation switcher, it is specially designed for conference room scenarios, featuring various models and specifications to meet diverse user needs. It supports 4x2 matrix switching and optional long-distance video, audio, and USB transmission via HDBT 3.0 technology.

Equipped with dual USB-C full-featured and dual HDMI+USB 3.0 inputs, it can connect multiple laptops or desktop computers. It supports 4 local USB 3.0 device ports, enabling connection to various USB conference devices such as USB cameras, audio-bars, and USB speakers, and can extend USB connectivity over long distances via HDBT.

The **iSwitch 402UC (TX)** offers flexible audio configuration, allowing HDMI audio, USB audio, and Dante audio to be output through a local balanced audio output port, also with the option to output conference audio to remote Dante-supported devices through the Dante port.

It supports multiple control interfaces, including RS232, GPIO, RELAY, and Sensor interfaces, for seamless integration with various controlled devices. With complete network functionality, it provides 2 independent RJ-45 interfaces and supports USB-to-Ethernet functions. Through the VLAN division and 802.1x setting, switcher and USB networks can be separated to meet security requirements.

It provides multiple switching options, including automatic switching, manual switching, and configuration priority switching. It also supports HTTP and HTTPS configuration, 802.1x security, CEC and RS232 configuration, customized GPIO function, and comes with built-in Web UI and API control.

1.2 FEATURES

- 4x2 conference presentation switch, integrating video, audio, USB, control and ethernet.
- Dual USB-C and dual HDMI + USB Host inputs, and all ports support cable lock connections.
- Full-featured USB-C inputs, supports 4K video, USB 3.2 data, USB ethernet and 60W charging.
- One USB-C input supports MST for dual-screen conferencing applications.
- Supports automatic switching, USB and video independent switching, priority switching, and other switching methods.
- Provides four USB 3.2 device ports for connecting conference equipment, such as cameras and speakerphone.
- Provides one balanced audio out for connecting audio equipment, and supports audio de-embedding, UAC, and Dante.



- Provides 100m HDBT 3.0 output for video and USB extension applications in medium and large conference rooms.
- Provides RS232, GPIO, RELAY, and OCS Sensor ports to connect various control and controlled devices.
- One USB charge-only port is connected to the conference table to provide a charging function for mobile phones.
- Each input port provides an independent USB to Ethernet bridge, providing a 1G ethernet connection to the connected computer.
- Provides two independent RJ-45 ports for ethernet switch or VLAN Setting.
- Supports one RJ-45 port for 2x2 Dante.
- Supports ethernet control, supports HTTP and HTTPS, and supports 802.1x authentication.

1.3 PACKAGE CONTENTS

(Note: The Rx and Tx are in one box by default.)

- 1 x iSwitch 402UC (Tx and Rx)
- 1 x DC 20V/10A Power Adapter
- 1 x AC Power Cord with US Pins
- 2 x USB 3.2 Type-C to Type-C Cable (L = 2m)
- 2 x USB 3.0 Type-A to Type-B Cable (L = 1.8m)
- 1 x 3.5mm 3-Pin Phoenix Male Connector
- 2 x 3.5mm 3-Pin Phoenix Male Connector (Double Layer)
- 1 x 3.5mm 5-Pin Phoenix Male Connector
- 1 x 3.5mm 6-Pin Phoenix Male Connector
- 4 x Mounting Brackets (with Screws)

1.4 SPECIFICATIONS

Model	iSwitich 402UC (Tx)
Name	4K60 4x2 UC Switcher with Dante
Input/Output Port	2 x HDMI IN, 2 x USB-C IN, 2 x HDMI OUT, 1 x HDBT, 2 x USB HOST (USB Type-B), 1 x AUDIO OUT (3.5mm, 5-pin phoenix connector), 4 x USB DEVICE (USB Type-A), 2 x RS232, 1 x GPIO (3.5mm, 6-pin phoenix connector), 2 x RELAY, 1 x SENSOR, 2 x ETHERNET (RJ45), 1 x DANTE (RJ45), 1 x DC 20V
Input/Output Signal Type	Supports HDMI 2.0 standard, up to 4K@60Hz 4:4:4 8bit or 4K@60Hz 4:2:2 12bit. Supports HDCP 2.2/1.4.
USB HOST IN 1 & 2	Supports USB 3.2 Gen 2x1 standard, up to 10Gbit/s
USB-C IN 3 & 4	<p>USB-C IN 3: USB-C supports USB 3.2 Gen 2x1 standard, and supports: Video: DP alt mode, SST only, up to 4K@60Hz. USB data: Up to 10Gbit/s. Charging: 60W.</p> <p>USB-C IN 4: USB-C supports USB 3.2 Gen 2x1 standard, and supports: Video: DP alt mode, MST dual output, up to 4K@60Hz. USB data: Up to 10Gbit/s. Charging: 60W.</p>
USB DEVICE	Maximum supports USB 3.2 Gen 2x1 standard, up to 10Gbit/s. 5V/1.5A output per port.
Input/Output Resolution Supported	VESA (60Hz): 800 x 600, 1024 x 768, 1280 x 768, 1280 x 800, 1280 x 960, 1280 x 1024, 1360 x 768, 1366 x 768, 1440 x 900, 1600 x 900, 1600 x 1200, 1680 x 1050, 1920 x 1200, 2048 x 1152, 2560 x 1440, 3440 x 1440 CTA: 1280x720P50Hz/60Hz, 1920x1080P24/25/30/48/50/60Hz , 3840x2160P24/25/30/48/50/60Hz, 4096x2160P24/25/30/48/50/60Hz
HDR	All HDR formats, including HDR 10, HLG, HDR 10+ and Dolby Vision
Audio Format	USB-C IN/HDMI IN/ HDMI OUT: Up to 7.1ch, including PCM 2.0/5.1/7.1ch, Dolby Digital, Dolby Digital Plus, Dolby TrueHD, Dolby Atmos, DTS 5.1, DTS-HD Master Audio and DTS:X. Audio de-embedding: Stereo only. Dante: Stereo only.

ETHERNET	1,000M/100M adaptive network
Maximum Data Rate	USB-C IN: 10Gbit/s (per lane) HDMI: 18Gbps USB 3.2: 10Gbit/s
Control Method	Front Panel Buttons, RS232, LAN (Telnet & Web UI)
Operating Temperature	0°C to 45°C (32°F to 113°F)
Storage Temperature	-20°C to 70°C (-4°F to 158°F)
Humidity	10% to 90%, non-condensing
ESD Protection	Human-body Model: ±8kV (Air-gap discharge)/±4kV (Contact discharge)
Power Supply	DC 20V, 10A
Power Consumption (Max)	Without USB and Charging: 13.1W With USB + Charging: 155.6W
Device Dimension (W x H x D)	325mm x 25mm x 180.2mm / 12.80" x 0.98" x 7.09" (without mounting brackets)
Product Weight	1.45kg/3.20lbs

1.5 TRANSMISSION DISTANCE

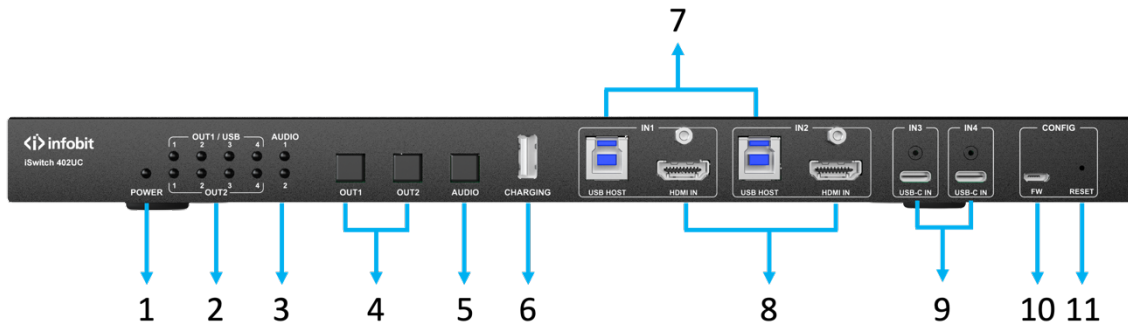
Note:

- T568B straight-through category cable is recommended.
- Please use F/FTP or U/FTP cable, and don't use UTP, F/UTP, or U/UTP cables.

Port	Cable Type	Range	Supported Video
HDBT 3.0	Cat 6A/7 (U/FTP, F/FTP or S/FTP)	100m/330ft	4K@60Hz (All) 4K@30Hz (All) 1080P@60Hz (All)
	Cat 5E/6	70m/230ft	4K@60Hz 4:2:0 24bpp 4K@30Hz (All) 1080P@60Hz (All)
		40m/131ft	4K@60Hz 4:4:4 24bpp 4K@60Hz 4:2:2 36bpp
USB-C	USB C to C	2m/7ft	4K@60Hz (All) 4K@30Hz (All) 1080P@60Hz (All)
HDMI	HDMI cable	Input/Output: 10m/33ft	4K@60Hz 4:2:0 24bpp 4K@30Hz (All) 1080P@60Hz (All)
		Input/Output: 5m/16ft	4K@60Hz 4:4:4 24bpp 4K@60Hz 4:2:2 36bpp

1.6 PANEL DESCRIPTION

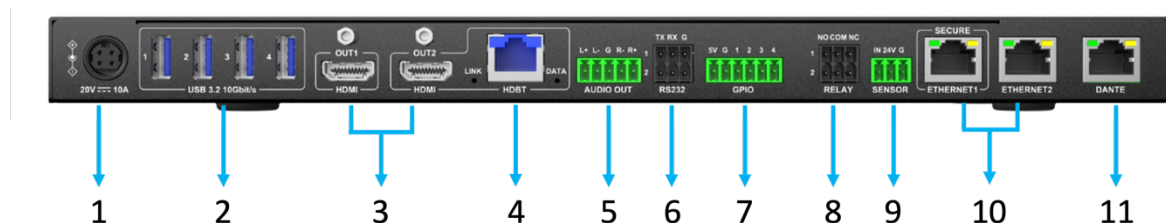
1.6.1 FRONT PANEL



ID	Name	Description
1	POWER LED	On: The device is powered on. Off: The device is powered off.
2	OUTPUT 1 / USB LEDs and OUT 2 LEDs	Red: USB devices are connected to the corresponding USB host. Green: The corresponding video input is selected or the corresponding video input and USB host are selected. Off: The corresponding input are not selected.
3	AUDIO 1&2 LEDs	On: The corresponding de-embedded audio from HDMI OUT 1/2 is selected as source. Off: The corresponding de-embedded audio from HDMI OUT 1/2 is not selected as source for AUDIO OUT.
4	OUTPUT 1&2 Selection Button	Press the button to select input source for HDMI OUT 1/2.
5	AUDIO OUT Selection Button	Press the button to switch the audio source between the de-embedded audio from HDMI OUT 1 and HDMI OUT 2 for AUDIO OUT port.
6	Charging	USB 2.0 Type-A port. 5V/2A USB charging.

7	USB HOST 1&2	<p>USB 3.2 type-B ports. Connect to USB HOST devices. USB HOST 1 and USB HOST 2 are bound with HDMI IN 1 and HDMI IN 2 respectively.</p> <p>The two ports support Ethernet bridge, the laptop connected to the two ports can access the network the ETHERNET ports connected. The two USB Host ports and two USB type-C ports share 1G network.</p>
8	HDMI IN	Connect to HDMI sources.
9	INPUT 3&4 (USB-C IN)	<p>USB 3.2 type-C ports. Connect to USB-C sources. The two full-featured USB-C ports support the following three functions:</p> <p>Supports audio, video and USB signal transmission, maximum 10Gbit/s data rate.</p> <p>USB-C IN 3 and 4 support DP SST, one video output with 4K signal transmission;</p> <p>USB-C IN 4 supports DP MST, two video outputs with 4K signal of each channel transmission;</p> <p>Supports PD 3.0, and can supply up to 60W power for the connected device;</p> <p>Supports 1G network connection, the laptop connected with these ports can access the ethernet the matrix connected;</p> <p>The following cable are recommended to use: USB Type-C to Type-C cable (USB 3.2 Gen 1x1 or above)</p>
10	FW	Micro-USB port. For ARM firmware upgrade.
9	RESET	<p>Insert a tool such as a needle.</p> <p>Press and hold it for about 5s: Reset the IP settings, including reset the IP mode to DHCP, and reset the login password to “admin”.</p> <p>Press and hold it for about 15s: Reset the device to factory defaults.</p>

1.6.2 REAR PANEL



ID	Name	Description
1	20V/10A	Connect to the power adapter provided.
2	USB DEVICE	USB 3.2 type-A ports, 5V/1.5A output per port. Connect to USB devices such as camera and speakerphone.
3	HDMI OUT (1~2)	Connect to the HDMI display devices. HDMI OUT 2 is mirrored with HDBT port.
4	HDBT	Connect to an HDBT 3.0 receiver (iSwitch 402UC-Rx)
5	AUDIO OUT	Connect to an audio receiver.
6	RS232 1 & 2	RS232 1: Connect to a RS232 control device for API control or connect to a 3rd party device for RS232 routing. RS232 2: Connect to a RS232 3rd party device for RS232 routing.
7	GPIO	Connect to GPIO devices. The device supports connecting to 6 GPIO devices.
8	RELAY 1 & 2	Connect to relay devices for relay control.
9	ETHERNET 1 (SECURE) & 2	Connect to a network device (e.g., network switch, router, computer, etc.) for LAN control (Web UI & Telnet). VLAN function can be configured via API commands and web UI, please refer to the separate document "API Command Set_iSwitch 402UC" or "Network" part in "Web UI Control" section.
7	Dante	Connect to the network for Dante audio connection.



2. ISWITCH 402UC (RX)

2.1 OVERVIEW

The iSwitch 402UC (Rx) is an HDBT 3.0 extender based on the new generation of HDBT 3.0 platform, which can transmit the uncompressed HDMI2.0 video signal up to 4K@60Hz 4:4:4 8-bit over 100m Cat 6a cable.

2.2 FEATURES

- **Transceiver design.** It can be arbitrarily set as a transmitter or a receiver and can be switched at any time, making the installation easier.
- **Uncompressed video.** It transmits 4K@60Hz 4:4:4 8-bit signal without compression and supports any HDR format, including Dolby Vision and HDR10+.
- **KVM.** Supports USB 2.0 & analog audio pass through with variable direction.
- **HDMI loop-out.** It supports local HDMI loop-out when it is set as transmitter mode.
- **Audio de-embedding.** Supports audio de-embedding at both ends.
- **1G/100Mbps network.** Supports 1G/100M adaptive network transparent transmission.
- **Multiple signals** transmission support (e.g. IR, RS232).
- **Two-way PoC/PoH.** Supports two-way PoC/PoH function, only need to connect one power adapter at one end, making the installation more flexible.

2.3 PACKAGE CONTENT

(Note: The Rx and Tx are in one box by default.)

- 1 x iSwitch 402UC (Rx)
- 1 x DC 12V Power Adapter
- 1 x AC Power Cord (with US Pins)
- 1 x IR Emitter
- 1 x Broadband IR Receiver (30kHz-50kHz)
- 2 x Phoenix Male Connectors (3.5mm, 3 Pins)
- 2 x Mounting Brackets (with Screws)

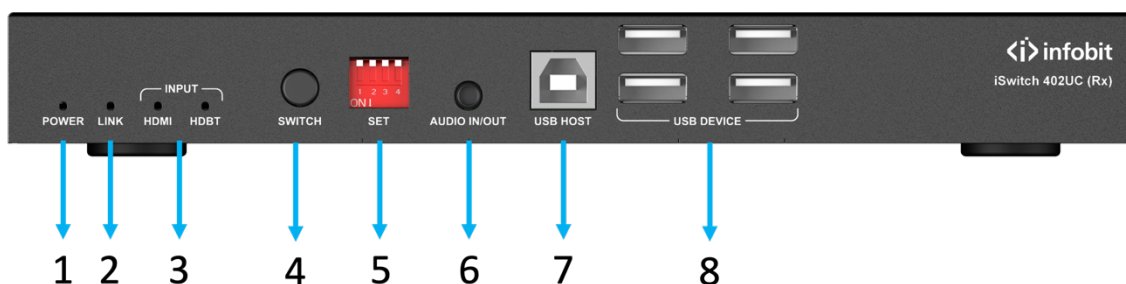
2.4 SPECIFICATIONS

Model	iSwitch 402UC (Rx)
Name	4K60 4x2 UC Switcher Rx
Video Input	Receiver mode: 1 x HDMI, 1 x HDBT Transmitter mode: 1 x HDMI
Input Video Signal	HDMI with 4K@60 YUV 4:4:4, HDCP 2.2
Video Output	Receiver: 1 x HDMI Transmitter: 1 x HDMI, 1 x HDBT
Output Video Signal	HDBT, HDMI
Input/Output Resolutions	4096 x 2160(24/30/50/59.94/60Hz, YUV 4:4:4), 3840 x 2160(24/30/60Hz, YUV 4:4:4), 2560x1600/60Hz, 2560x1440/60Hz, 1920x1200/60Hz, 1920x1080P/60Hz, 1680x1050/60Hz, 1600x1200/60Hz, 1600x900/60Hz, 1440x900/60Hz, 1366x768/60Hz, 1360x768/60Hz, 1280x1024/60Hz, 1280x960/60Hz, 1280x800/60Hz, 1280x768/60Hz, 1280x720/60Hz, 1024x768/60Hz, 800x600/60Hz.
Audio Input	1x analog audio (pass-through)
Audio Output	1x analog audio (pass-through) 1x analog audio (audio de-embedding)
Audio Format	Audio In/Out: Stereo HDMI In/Out: Fully supports audio formats in HDMI 2.0 specification, including PCM 2.0/5.1/7.1, Dolby TrueHD, Dolby Atmos, DTS-HD Master Audio and DTS:X HDBT: Same as HDMI In/Out
Maximum Pixel Clock	600MHz
Maximum Data Rate	18Gbps
USB Spec	USB 2.0 and backward compatible with USB 1.1/1.0
USB Port	1x USB 2.0 host port (type-B) 4x USB 2.0 device ports (type-A)
Control Method	RS232

Transmission Distance	1080P: 100m 4K@60Hz 4:2:0: 100m 4K@60Hz 4:4:4: 100m over Cat 6a/7 cable
Operating Temperature	0°C to 45°C (32°F to 113°F)
Storage Temperature	-20°C to 70°C (-4°F to 158°F)
Humidity	10% to 90%, non-condensing
ESD Protection	Human-body Model: ±8kV (Air-gap discharge)/±4kV (Contact discharge)
Power Supply	DC12V 3A
Power Consumption (Max)	TBD
Device Dimension (W x H x D)	215mm x 25mm x 120mm/8.46" x 0.98" x 4.72"
Product Net Weight	0.60kg/1.32lbs

2.5 PANEL DESCRIPTION

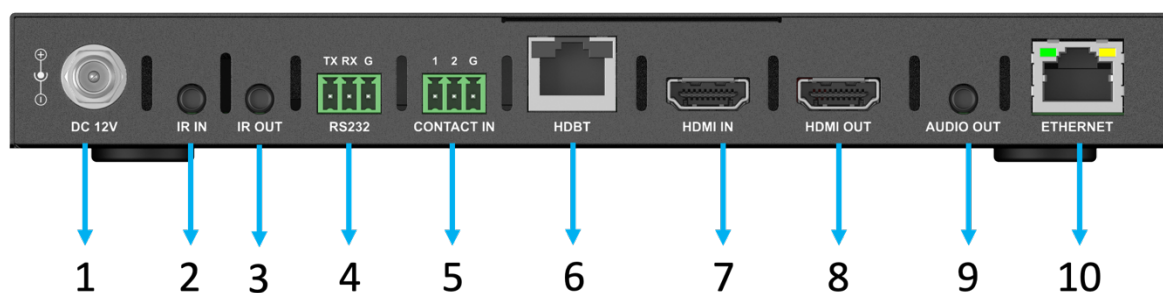
2.5.1 FRONT PANEL



ID	Name	Description
1	Power LED	On: The device is powered on. Off: The device is powered off.
2	Link LED	On: The HDBT ports between this device and another transceiver are connected. Off: The HDBT ports between this device and another transceiver are not connected.

3	Input	HDMI LED On: The HDMI In is selected as input video source. HDBT LED On: The HDBT is selected as input video source. Note: These two LED indicators indicate the input source selection status of receiver only.
4	Switch	Press this button to select the input video source between HDMI In and HDBT In for receiver.
5	Set	4-Pin DIP Switch for settings of transceiver's working mode (transmitter/receiver), USB mode (USB Host/USB Device), Audio In/Out and RS-232 working mode (RS232 pass-through, API control or firmware update). For more information, see "DIP Switch Settings" section.
6	Audio In/Out	This port can be configured as Audio Input or Audio Output port. For more information, see "DIP Switch Settings" section.
7	USB Host	USB 2.0 Type-B port. Connect to a USB host device (e.g. PC).
8	USB Device	USB 2.0 Type-A port. Connect to USB slave devices (e.g. keyboard, mouse, etc.).

2.5.2 REAR PANEL



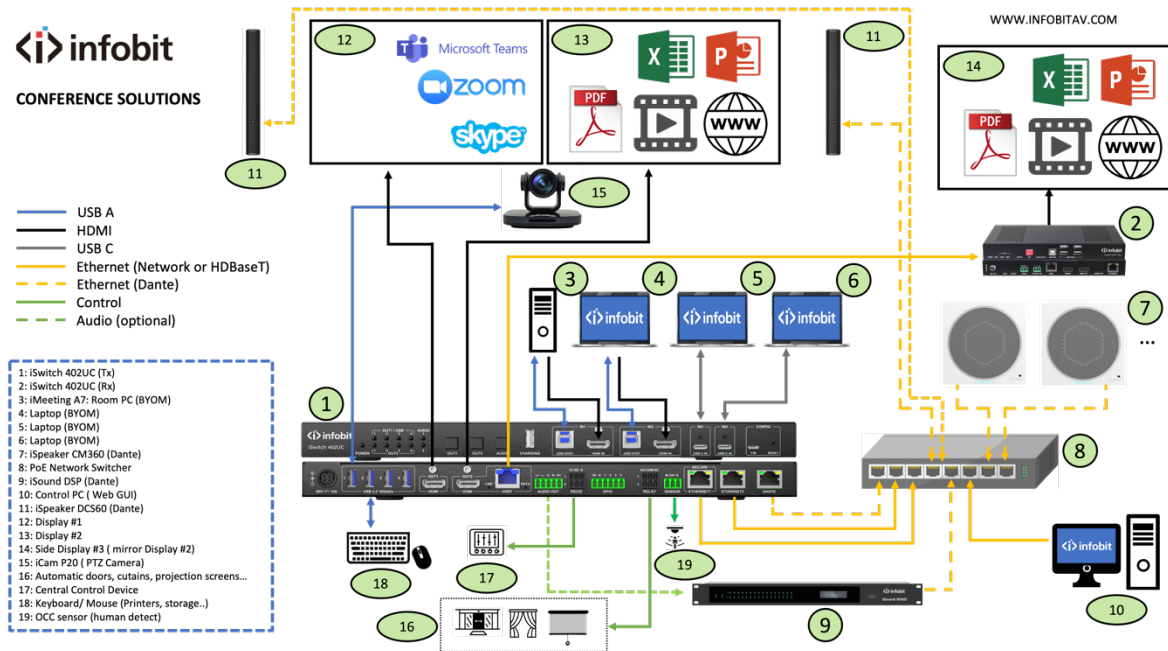
ID	Name	Description
1	DC 12V	Connect to the power adapter provided.
2	IR In	Connect to the IR receiver provided.

3	IR Out	Connect to the IR emitter provided.
4	RS232	Connect to a RS232 device for bi-directional RS232 pass-through, API control or firmware upgrade. The default baudrate of this port is 115200.
5	Contact In	Connect to a keypad or push button to select the input video source between HDMI In and HDBT In for receiver.
6	HDBT	Connect to another transceiver for HDBT transmission.
7	HDMI In	Connect to an HDMI source device.
8	HDMI Out	Connect to an HDMI display device.
9	Audio Out	Connect to an audio receiver (e.g. speaker) for audio de-embedding output.
10	Ethernet	Connect either side to the wireless router for Ethernet pass-through.

3. DIAGRAMS

3.1 DIAGRAM #1

With Room PC, laptops, PTZ camera and Dante audio.



3.2 DIAGRAM #2

With Room PC, iShare X400 (BYOD/BYOM), laptops, camera videobar and Dante audio.

