



Q: What does the RTK-AM1™ do?

A: The **RTK-AM1™** is designed to bring several signal types to/from a conference room table over a single category cable. It includes a 4x1 video switch, USB-A and USB-C ports with host capabilities at each end.

Q: I only see three HDMI inputs. Where is the fourth?

A: The fourth input on the **RTK-AM1-TX™** is actually the USB-C connector, which supports not only USB data, but also USB DisplayPort Alternate Mode (DP Alt Mode) video when connected to a Full Function USB-C device port.

Q: What is a Full Function USB-C port?

A: A full function USB-C port is one that supports traditional USB data, power delivery for charging, and DP Alt Mode video.

Q: How can I tell if my device has a Full Function USB-C port?

A: Not all USB-C ports are full function ports. If it's a Windows device it will typically have a lightning bolt symbol (⚡) at the connector signifying that is Thunderbolt capable and therefore a full function USB-C port. MacBooks don't normally have printed symbols at the connector, but typically MacBooks 2018 and newer include full function USB-C ports. Check the specifications to be certain.

Ethernet

Q: How do the Ethernet ports work on the RTK-AM1™?

A: There are three Ethernet ports on the RX and four ports on the TX. When in VLAN mode (DIP switch selectable) the "Mics Out" port on the RX is tied to the three Mic ports on the TX. The two "Ethernet Switch" ports on the RX is tied to the "Ethernet" port on the RX. This is designed for codecs that require Ethernet microphones to be on their Link Local Network and touch panels to be on the LAN side of the network.

When not in VLAN mode all four Ethernet ports on the TX are tied to all three Ethernet Switch ports on the RX.

Q: What kind of PoE is provided?

A: The **RTK-AM1-TX™** includes 4 Ethernet ports that provide PoE/PoE+ power. 2 PoE+ ports support 48VDC PoE+ devices up to 30W per IEEE 802.3at. The remaining ports support 48VDC PoE devices up to 15.4W per IEEE 802.3af (Total 76.2W maximum).

The ports are intended to power IP microphones, touch panels, and table cameras.

USB

Q: What kind of device charging is available at the RTK-AM1-TX™ USB-C port?

A: The **RTK-AM1-TX™** USB-C port can support Power Delivery (PD) up to 60W to the connected device.

Q: How does USB data work between the TX and RX?

A: Both the TX and RX include one USB-C and two USB-A ports.

- If the host is connected to the TX it will see all four USB-A ports and the USB-C port on the RX as device ports.
- If the host is connected to the RX it will see all four USB-A device ports only. The USB-C port on the TX cannot support devices (only hosts) so it is not used when the host is on the RX side.

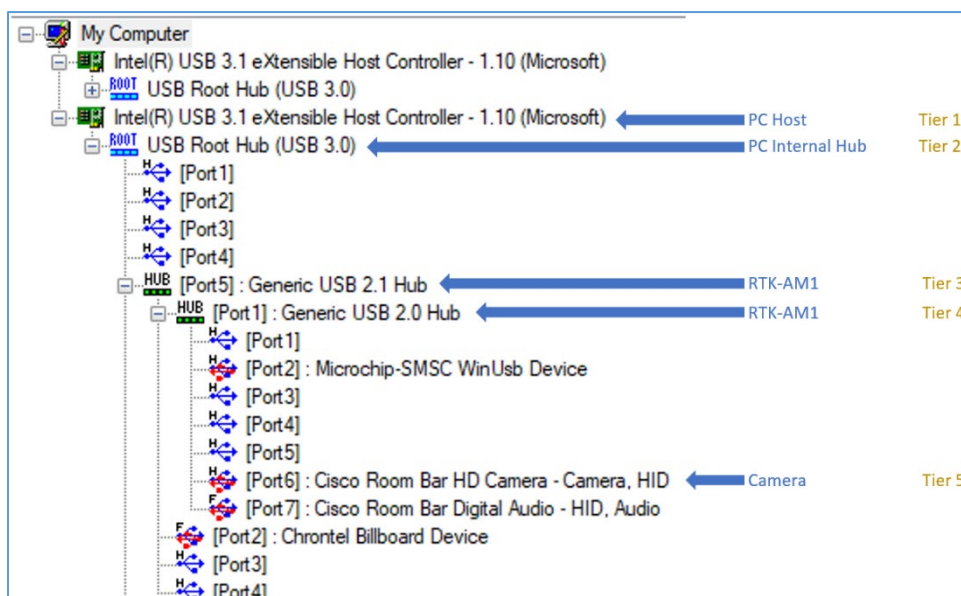
USB devices local to the host side support USB 3.0 speeds, while USB devices on the extended side support USB 2.0 speeds.

Q: Can there be more than one host connected to the RTK-AM1™ system?

A: No, only one host may be connected at a time. During installation choose which USB direction makes the most sense for your application. A host device can be connected to the USB-C on either the **RTK-AM1-TX™** or **RTK-AM1 RX™**.

Q: How many USB tiers does the RTK-AM1™ use?

A: A linked **RTK-AM1™** kit will use up two tiers (hubs) in the USB hierarchy. Be aware that many computers will use up two tiers internally, and the attached 3rd party device will use another tier. Seven total tiers is the maximum allowed per the USB specification, so take care to design your systems appropriately. Software programs such as UsbTreeView (freeware by Uwe Sieber) can be a useful tool in verifying tier structure. Below is a typical example of a USB camera connected through the **RTK-AM1™** into a host PC:



HDMI

Q: What resolutions does the video section support?

A: The video section supports up to 4K60 4:4:4 resolution on all four video inputs (3 x HDMI and 1 DP Alt Mode). HDMI embedded audio and HDCP up to v2.2 (if present) are also supported.

Control

Q: How does the Input Select 6-pin connector work on the RTK-AM1-TX™?

A: These are inputs designed to be used with a third-party control system or contact closure switch. The inputs are active low and include an internal pull-up. The connector has two modes of operation depending on the state of DIP switch 5 on the RTK-AMX-TX.

With DIP switch 5 OFF, only pin 1 and one of the ground pins are used. A momentary short of pin 1 will select the next available connected source. It will automatically skip over inputs without a source connection.

With DIP switch 5 ON, this connector operates as a discreet input selection. A momentary short between one of the numbered pins and ground will select the indicated video input.

Q: How does Auto-Switching work?

A: There are two auto-switching modes: Last Source Detect Mode and Priority Mode. In Last Source Detect Mode the video switches to the last active device attached to the Transmitter. In Priority Mode the video switches to the last active device attached, however when all other devices are removed the video falls back to the priority port (defined by TX DIP switch 4).

Operation

Q: What do the LEDs indicate?

A: The LEDs on both the **RTK-AM1-TX™** and **RTK-AM1-RX™** provide a good way to tell if the system is wired correctly and operating normally. Refer to the chart below for details.

Module	LED LABEL	ACTIVE STATUS	INDICATES
RTK-AM1-RX	Power	Solid Green	Good Power
	Status	Blinking Green	Good Link Firmware
	FW*	Blinking Green	Good MCU Firmware
		Blinking Red	DIP switch 8 is on but no valid configuration file is loaded
	Link	Solid Green	Linked to RTK-AM1-TX
	In 1 - In 4	Solid Green	Video source selected
RTK-AM1-TX	Power	Solid Green	Good Power
	Status	Blinking Green	Good Link Firmware
	FW*	Blinking Green	Good MCU Firmware
	Link	Solid Green	Linked to RTK-AM1-RX
	In 1 - In 4	Solid Green	Video source selected

*FW blink pattern changes when performing firmware update or writing the log file. Refer to the “RTK-AM1 Firmware/Log Guide” under the Support page at www.soundcontrol.net for details.

Q: What do the DIP switches do?

A: The following chart shows the functions of the 8 position DIP switches:

RTK-AM1-RX DIP Switch

Switch	Function	OFF	ON
1	Codec Communications on Diag RS-232 Port	Disable	Enable
2	Codec Type	Cisco	n/a
3	Reserved	-	-
4	Reserved	-	-
5	Reserved	-	-
6	Codec Connector ID - (Applies when DIP 1 is on and DIP 2 is off)	DIP 6 Off and DIP 7 Off - Auto detect the Connector ID.	
7		DIP 6 On and DIP 7 Off - Force Connector ID=2 DIP 6 Off and DIP 7 On - Force Connector ID=3 DIP 6 On and DIP 7 On - Force Connector ID=4	
8	Use microSD Configuration File	Disabled*	Enable

*Default settings are used when Configuration File is disabled (See details below).

RTK-AM1-TX DIP Switch

Switch	Function	Off	On
1	Ethernet VLAN Mode	Disable	Enable
2	Video Auto Switching	Disable	Enable
3	Video Auto Switch Mode (Applies when DIP 2 is on)	Last Source Detect Mode	Priority Mode
4	Auto Switch Priority Input (Applies when DIP 2 and DIP 3 are on)	USB-C Input	HDMI Input 1
5	Input Select Mode (6-pin terminal block)	Cycle Mode (Each time pin 1 is pulled low, move to next available connected video port)	Discreet Mode (switch to video input of last pin pulled low)
6	HDCP Follow	HDMI inputs report HDCP capability based on DIP switch 7 setting.	HDCP capability is passed through from RX output device to HDMI inputs
7	HDCP self-declaration (Applies when DIP 6 is off)	All HDMI inputs report no HDCP support	All HDMI inputs report support for HDCP1.4 and HDCP2.2
8	Reserved	-	-

Q: What are the default settings when the Configuration File is disabled? (RX DIP switch 8 Off)

A: The following settings are used when the **RTK-AM1-RX™** DIP switch 8 is off:

These settings are only applicable when Cisco Codec Communications are Enabled:

Parameter	Default Value
Heartbeat timeout interval	30 seconds
SCT device name reported to codec	SCT RTK-AM1
HDMI 1 input name on Cisco touch panel	SCT-HDMI1
HDMI 2 input name on Cisco touch panel	SCT-HDMI2
HDMI 2 input name on Cisco touch panel	SCT-HDMI3
USB-C input name on Cisco touch panel	SCT-USBC

Q: Are there any special settings when integrating with a Cisco codec?

A: After logging into the Cisco web interface, navigate to Settings, Video. Then scroll to the input that is connected to the **RTK-AM1-RX™**. Under the settings of that connector verify the following parameters:

PresentationSelection = Manual
Visibility = IfSignal

Next, navigate to Settings, SerialPort and verify the following parameters:

BaudRate = 115200
LoginRequired = Off
Mode = On

Be sure to click Save if you make any changes on these pages.

Q: I'm installing in a secure environment. Are there any options to be in compliance?

A: Some secure environments don't allow memory card slots on devices. In the Tech Support Downloads section of www.soundcontrol.net there is a special version of Secure firmware that will completely and **permanently** disable the microSD slot. Note: This is not reversible.