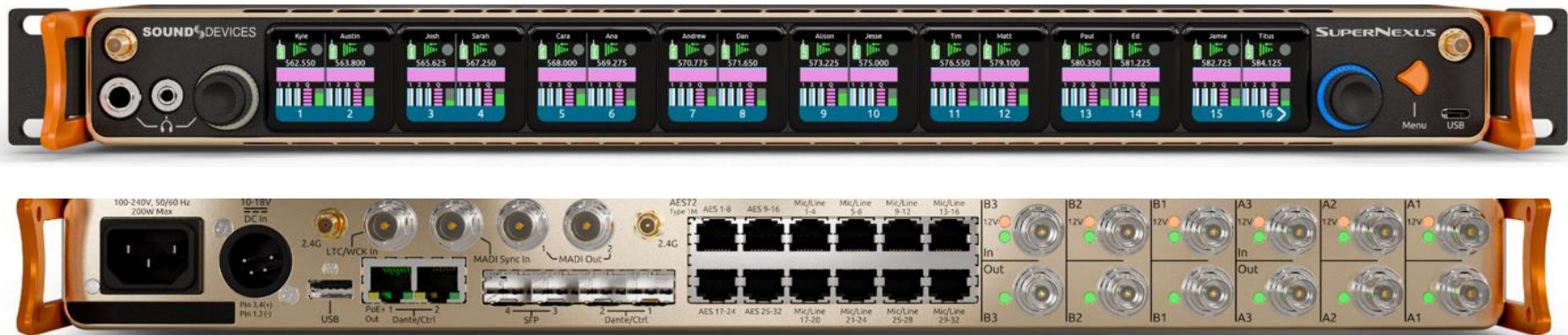


# SOUND<sup>5</sup> DEVICES

## ASTRAL<sup>®</sup>



## A20-SuperNexus

16 to 32-Channel, HexVersity Rack Mount Receiver  
with SpectraBand and NexLink Technology

User Guide v8.10

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## Chapter 2: Introduction

The A20-SuperNexus is an ultra-high performance, 16 to 32-channel wireless microphone receiver in 1RU rackmount chassis. It features 16 independent, HexVersity channels that can be expanded to 32 channels via software license. The A20-SuperNexus features NexLink, an innovative concept in wireless microphone receivers: full remote control of microphone transmitters via an integrated, long distance 2.4 GHz link.

### 2.1 Key Features

- 16-channel high-performance, HexVersity receivers in a 1RU size. Expandable to 24 or 32 channels via one or two 8-channel [expansion licenses](#).
- 169 MHz – 1525 MHz tuning range via SpectraBand Technology.
- Three independent bands, each tunable to any 24 MHz wide filter band for a total of 72 MHz of simultaneously usable spectrum.
- Compatible with Astral transmitters including the A20-Mini and A20-TX bodypacks and A20-HH handheld.
- NexLink: integrated, long distance remote control of individual or groups of wireless transmitters.
- Integrated Real Time Spectrum Analyzer (RTSA) and scanner for excellent visualization of RF activity.
- AutoAssign: automatic deployment of clean RF frequencies in seconds.
- Multiple [Antenna Modes](#), supporting Diversity, 4Versity, HexVersity, 3-Zone Combiner configurations and more.
- Three BNC antenna input pairs - each compatible with passive, bias-powered, and smart antennas.
- [RF Mirror Mode](#) for fully redundant operation.
- Dante audio-over-IP for RF receiver audio including Dante Redundancy.
- 4 network ports (2x RJ45, 2x SFP) configurable for Dante and Control, over copper or fiber-optic connections.
- Web App control from a browser on any computer, smartphone or tablet.
- Up to 64 channels of MADl and Dante plus up to 32 AES and analog mic/line outputs.
- Expansion port for connecting the [A20-Opto-HMA or A20-Opto-ST](#) 1RU expansion chassis.
- Support for the [A20-Outpost-NL](#) remote NexLink antenna box.
- Bridging from Dante input to AES and Analog outputs.
- Wide, 12.4" color, sunlight-readable OLED array with touch for control and monitoring.
- Supports GainForward Architecture: No gain setting on the Astral transmitter. Adjust gain at the receiver or mixer.
- 100% digital long-range modulation delivers the longest transmission distance of any digital wireless system on the market.
- RF SAW filters for excellent rejection of interference signals.
- Excellent audio quality, full 10 Hz – 20 kHz audio bandwidth.
- BNC timecode input for automatic jam of timecode to transmitters over NexLink.
- BNC cascade outs for daisy-chaining RF signals to other receivers.
- Automatic pass through of BNC antenna inputs to cascade outputs in the event of power loss.
- Front-panel 3.5mm and 1/4" headphone outputs.
- USB-A and USB-C ports for USB flash drives, keyboards, and transmitter pairing. Support for USB hubs.
- PoE+ output for powering external PoE+ powered devices including the A20-Nexus and A20-Outpost-NL.
- AstralComm triggering of DiGiCo console macros from Astral transmitters

## 2.2 SpectraBand

The A20-SuperNexus incorporates SpectraBand, a technology that enables the A20-SuperNexus to tune over a super wide range of 169-1525 MHz. This 169-1525 MHz global range is divided into multiple tightly filtered frequency ranges called 'filter ranges'. The sharp attenuation at either end of a filter range significantly reduces out of band interference resulting in excellent range and performance. Available filter ranges vary by country.

For instance:

In the USA, available filter ranges fall within the following:

- The VHF band (169-216 MHz)
- The entire UHF Broadcast TV band (470-608 MHz)
- The 600 MHz Guard Band (614-616 MHz)
- The 600 MHz Duplex Gap (653-663 MHz)
- The 900 MHz ISM Band (902-928MHz)
- The 950 MHz STL Band (941.5-960 MHz)
- The 1.5 GHz AFTRCC band (1435-1525 MHz), with an appropriate license.

In the UK, available filter ranges fall within the following:

- The VHF band (173-210 MHz)
- The core UK UHF TV band (470-702 MHz)
- The 800 MHz Duplex Gap (823-832 MHz)
- The 800 MHz Guard Band (863-865 MHz)
- The DME bands (961-1015 MHz, 1045-1075 MHz, 1105-1154 MHz), with an appropriate license.
- The IMT band (1518-1525 MHz)

Please see <https://www.sounddevices.com/available-frequencies/> for further detailed information on which filter ranges are available for each country.

## 2.3 Tuning Bands

SuperNexus includes three independent Tuning Bands (or 'Bands' for short). Each Band is tunable to any of the ~24 MHz wide filter ranges, for a total of 72 MHz of simultaneously usable spectrum.

## 2.4 HexVersity

SuperNexus' HexVersity architecture is well-suited to massive venue events with its unrivaled antenna coverage. The six antenna inputs can be configured in multiple ways for different applications, including Diversity (1 antenna pair), 4Versity (2 antenna pairs), HexVersity (3 antenna pairs) and Zone Combine modes. See [Antenna Modes](#).



## 2.5 Digital Wireless Modulation

### Long Range, Standard, and T&M (Test and Measurement) Modulation

The A20 wireless products offer three proprietary digital modulation schemes that provide unbeatable range, unrivaled audio quality, and very low latency. Modulation schemes can be selected on a per-receiver-channel basis. Long Range modulation has better sensitivity which results in better range. T&M (Test and Measurement) modulation has been specifically optimized for the flattest frequency response and phase response possible to very accurately measure the phase and frequency response of loudspeaker arrays in indoor and outdoor venues. The modulation setting must match between the transmitter and the A20-Nexus for the transmitted signal to be received and decoded.

### Intermodulation Immunity

Because the Astral series transmitter design is inherently resistant to intermodulation, multiple Astral digital wireless transmitters can be used simultaneously on nearby adjacent frequencies without significant worry of intermodulation interference. Systems can be used together when frequency centers are separated by at least 400 kHz. Note that when operating in the 902-928 MHz ISM Band, it is recommended to separate channel frequencies by at least 1 MHz.

## 2.6 NexLink Wireless Transmitter Control

NexLink is a proprietary 2.4 GHz bi-directional wireless data link technology that allows multiple Astral transmitters to be controlled, monitored, and timecode synced from a A20-SuperNexus over long distance. NexLink is designed to offer robust and reliable control over distances far exceeding that of the wireless audio transmission, even in the presence of Wi-Fi and Bluetooth interference. An A20-SuperNexus can pair with up to 64 NexLinked transmitters. Astral transmitters include the A20-Mini, A20-TX, and A20-HH.

## 2.7 GainForward

The A20-SuperNexus supports the Astral series GainForward feature. GainForward eliminates the need to adjust microphone preamplifier gain at the wireless transmitter. Audio levels from the transmitter are adjusted at the A20-SuperNexus receiver. If the talent speaks or sings too softly or emotes too loudly after being “wired” with the Astral transmitter, simply adjust the transmitter gain with the downstream mixer’s gain trim, instead of needing to access the transmitter. Read more about GainForward at: <https://www.sounddevices.com/gainforward-explained/>

When an A20-SuperNexus receiver channel is receiving a signal from an Astral transmitter, the user can adjust the receiver channel’s gain, low cut, and polarity from its associated [1RX view](#).

## 2.8 Safety Information



All the safety and operating instructions should be read before the product is operated.



**WARNING:** To reduce the risk of fire or electric shock or damage, do not expose this product to rain or moisture. Only use in non-tropical climate regions.



**ALTITUDES:** This product is suitable for use at altitudes below 2000 meters. Do not operate at higher altitudes, where different environmental conditions could affect its performance or safety.

**RETAIN INSTRUCTIONS:** These safety and operating instructions should be retained for future reference.

**HEED WARNINGS:** All warnings on the product and in the operating instructions should be adhered to.

**FOLLOW INSTRUCTIONS:** All operation and user instructions should be followed.

**VENTILATION:** With its 32 channels of HexVersity (internally there 192 individual radio receivers running simultaneously), the SuperNexus circuitry generates a bit of heat. This heat must be exhausted into the air to keep the unit cool enough for operation. Cool air is drawn through the front panel of the unit and exhausted through the side panels of the unit. It is imperative that the front and sides stay unobstructed with decent airflow. The SuperNexus should be situated so that its location or position does not interfere with its proper ventilation. For example, the product should not be placed on a bed, sofa, rug, or similar surface that may block the ventilation openings: or, placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through ventilation openings.

**HEAT:** The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (e.g. amplifiers) that produce heat.

**FLAME SOURCE:** The product should be situated away from any naked flames such as candles, open fires or gas, oil or wood burning heaters.

**POWER SOURCES:** The product should be connected to a power supply only of the type described in the operating instructions or as marked on the product.

**ATTACHMENTS / ACCESSORIES:** Only use attachments and /or accessories specified and approved by the manufacturer.

**CLEANING:** The product should only be cleaned with a soft dry cloth.

**DAMAGE REQUIRING SERVICE:** The product should be serviced by qualified service personnel when:

- the power supply cord or the plug has been damaged: or
- objects have fallen, or liquid has been spilled into the product: or
- the product has been exposed to rain or moisture; or
- the product does not appear to operate normally or exhibits a marked change in performance; or
- the product has been dropped, or the enclosure damaged.

**SERVICING:** The user should not attempt to service the product beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

**INSTALLATION: *Caution:*** The product should only be installed and used in accordance with the manufacturer's operating instructions. Use with carts, stands, or carriers may result in instability causing injury.

**HEADPHONES:** The headphone output can produce high sound levels which may be harmful to your hearing. The use of lower impedance headphones/earpieces may cause unacceptable high sound levels.

**WARNING:** This product must be connected to a mains socket outlet with a protective earthing (grounding) connection.

**GROUNDING OR POLARISATION:** Precautions should be taken so that the grounding or polarization means of the product plug is not defeated. A polarized plug can only be inserted in one way. A grounding type plug has two pins and a third grounding connection or pin. The grounding terminal is provided for your safety. When the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.



**POWER CORD PROTECTION:** Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs and the point where they exit from the product.



**POWER DISCONNECTION:** The mains supply disconnect device is the mains plug or product coupler. Either must remain accessible to be readily operable when the product is in use.

**MULTIPLE POWER SOURCES:** Caution shock hazard. Disconnect all power sources. Where a unit receives power from more than one power source, the power disconnect devices must be grouped together and be easily accessible to be readily operable.

**NON-USE PERIODS:** The power cord of the product should be unplugged from the outlet when left unused for a long period of time. Unplug the product during lightning storms.

## 2.9 Architectural Overview

The A20-SuperNexus builds upon the existing A20-Nexus' new approach to professional audio receiver design, allowing tuning from 169MHz all the way to 1525MHz, with some significant additions.

The first thing to note about the A20-SuperNexus architecture is there are six independent RF signal paths – one for each antenna input – which all operate simultaneously. This allows for several significant advances over the existing A20-Nexus' two antenna paths. Now, up to three antenna pairs can be routed to different tuning bands. For example, four Astral transmitters could be operating in the 174-198 MHz VHF band, twelve in the 512-536 MHz UHF band, and sixteen in the 940-960 MHz band – all with full, true-diversity operation. Alternatively, all six antennas could be simultaneously assigned to one tuning band (“HexVersity”) for up to 32 transmitters, providing the ultimate in robust reception for all transmitters. The six antenna inputs can also be configured in many other modes.

The architecture of the A20-SuperNexus is as follows: the antenna inputs first route through fail-safe bypass relays, followed by pre-select filters. The fail-safe relays switch the incoming antennas directly to the cascade outputs in the event of a power loss. Antenna bias power can pass through the fail-safe relays. The pre-select filters reduce any out-of-band interference. The RF signals then pass through a versatile antenna matrix splitter/combiner. This matrix allows for many configurations, including traditional Diversity (1 antenna pair), 4Versity (2 antenna pairs), HexVersity (3 antenna pairs), as well as zone combining. Following this antenna matrix are the main receiver sections.

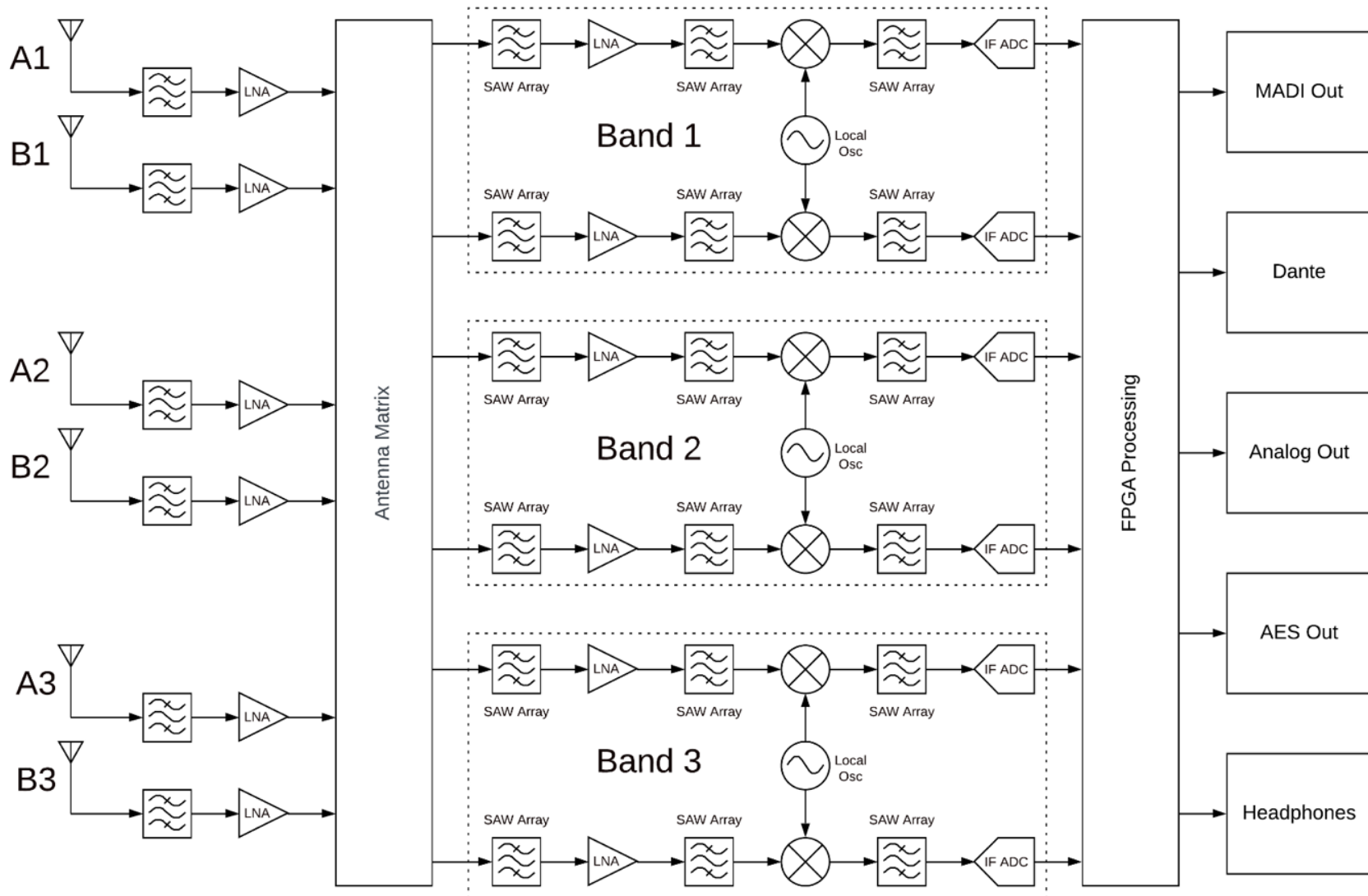
The section that immediately follows the matrix splitter/combiner is the first SAW filter array. These filter ranges are a key element of our unique SpectraBand technology. They allow for a tuning range from 169 MHz - 1525 MHz to be divided into multiple, tightly filtered tuning bands. The extremely sharp attenuation at either end of a tuning band's filter range significantly reduces unwanted interference outside the selected tuning band, resulting in excellent range performance. Filter ranges can vary in width but tend to be around 24 MHz wide. The next section is the Low-Noise Amplifier (LNA), which is one of the most important stages in the design. This section has been specially designed for very low noise and high dynamic range, which results in long-range reception and high overload capability. This LNA stage exhibits a noise figure of only 0.35 dB, one of the very best on the market currently. This is followed by yet another SAW filter array. This array further attenuates out-of-band signals, ensuring reliable reception, and greatly suppressing any image frequencies.

A Local Oscillator and Mixer perform the traditional function of a single down-conversion superheterodyne radio. This section has been meticulously designed and is the other key element of our unique SpectraBand technology. This section exhibits extremely low phase noise and wide dynamic range to accurately down-convert the RF to a lower Intermediate Frequency (IF) for conversion into the digital domain. Before conversion into the digital domain, the signal passes through a final array of SAW filters, rejecting any extraneous energy not wanted in the down-conversion, as well as providing anti-aliasing before the Analog-to-Digital (A/D) converter. The A/D converter is a wideband, extremely high dynamic range part which accurately captures 24 MHz of IF energy into a digital version of that signal.

The real magic of the entire A20-SuperNexus happens within the Field-Programmable Gate Array (FPGA). An FPGA is essentially a giant custom, massively parallel processor programmed in house. The FPGA can perform filtering, frequency conversion, and demodulation in the digital domain which far exceeds anything that can be done via analog or traditional digital circuitry. The FPGA can perform demodulation of 32 channels simultaneously. The

FPGA also performs the HexVersity operation which not only selects the best digital signal from the six antennas, but works at the bit level, yielding exceptional range. The resultant audio signals are then fed out of the FPGA to the various audio outputs.

### 2.9.1 Block Diagram



## Chapter 3: Panel Views

### 3.1 Front Panel



#### 1 & 3: NexLink Antenna Connectors

Dual SMA-F ports for connecting 2.4 GHz SMA-M antennas for NexLink. Both antennas need to be connected. Alternatively, the rear-panel NexLink connections can be used. NexLink antennas can be located remotely closer to the action by using the optional [A20-Outpost-NL](#) box.

#### 2: OLED Touch Screens

12.4-in Color OLED array for control and monitoring.

- Touch can be disabled to prevent inadvertent switching of the screens to different views. Press and hold the Control Knob for > 3 secs to disable. Re-enable by pressing and holding the Control Knob for > 3 secs. Disabled touch is indicated by a thin orange border around the eight OLEDs. The Control Knob, Headphone Knob and Triangle button remain active when touch is disabled.
- Screensaver: To prevent burn in, the OLEDs can be set to turn off after a period of inactivity from the *Main Menu>System>Screensaver* setting.
- Lockout Mode: The whole front panel interface (OLEDs, Headphone Knob, and Triangle button) can be disabled to prevent unauthorized users from accessing settings. See *Main Menu>System>Lockout Mode*.
- Orange border around each OLED indicates that touch is disabled by holding the Control Knob > 3 secs.
- Flashing red border around each OLED indicates that a transmitter's battery is low.
- Yellow, red, or green borders around each OLED indicate RF Mirror mode status. See RF Mirror Mode.

#### 4: Triangle Button

- Short press to power up. Press and hold to power down.
- When powered up, press to cycle through the current Receiver view and Main Menu. Backs out of sub-menus.

#### 5: Control Knob

- Rotate to scroll through lists and select parameter values.
- Rotate to scroll frequency cursor or adjust horizontal/vertical zoom in RTSA/Scan view.

- Rotate to select next or previous RX channel when viewing the 1RX View.
- Press and hold > 3 secs to disable/enable touch on the OLED screens. Orange border around each OLED indicates that touch is disabled.

### 6: Control Knob Multicolor Ring LED

- Solid blue when powering up.
- Flashing orange when selected Sync Reference is not detected.
- Solid green when the front panel is locked out. See menu (*Main Menu>System>Lockout Mode*).

### 7: Headphone Outputs

- 3.5 mm connector and 1/4" connector.

### 8: Headphone Knob

- Rotate to adjust headphone gain. The HP gain value is displayed on OLED 1 when adjusted.

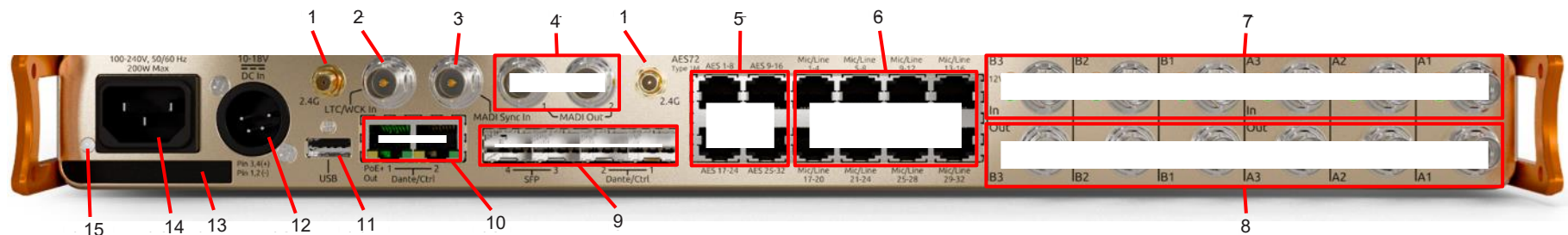
### 9: Headphone Knob Multicolor Ring LED

- Red when headphone output is clipping.

### 10: USB-C Port

- For pairing transmitters and mounting USB flash drives. The USB-C port supports USB hubs so that multiple devices can be connected at the same time. Max power output is 15 Watts (5V, 3A).

## 3.2 Rear Panel



### 1: NexLink Antenna Connectors

Dual SMA-F ports for connecting 2.4 GHz SMA-M antennas for NexLink. Both antennas need to be connected. Alternatively, the front-panel NexLink connectors can be used.



*Note: Only use the 2.4 GHz SMA-M antennas supplied with the SuperNexus or equivalent. Do not use 2.4 GHz RP-SMA antennas (as used on Sound Devices 8-Series mixer/recorders).*

## 2: LTC / Wordclock Input

BNC for connecting LTC or Wordclock input. A20-SuperNexus auto-detects whether the signal is LTC or Wordclock including the associated frame rate or sample rate.

## 3: MADI Input

BNC for connecting a MADI input for use as a sync reference. MADI audio input is not supported - sync only.

## 4: MADI Outputs

Dual BNCs for outputting 48 or 96 kHz MADI audio streams. Hi-Speed and SMUX 96 kHz MADI audio streams are supported.

## 5: AES Outputs

RJ45 connectors conforming to the AES72 Type 1M pin-out standard for up to 32 channels of AES digital audio output. [AES72-2019: AES standard on interconnections - Application of RJ45-type connectors and quad twisted pair cable for audio interconnections](#)

## 6: Analog Outputs

RJ45 connectors conforming to the AES72 Type 1M pin-out standard for up to 32 channels of Analog Mic/Line output. [AES72-2019: AES standard on interconnections - Application of RJ45-type connectors and quad twisted pair cable for audio interconnections](#)

## 7: Antenna Inputs and LEDs

- BNC antenna pairs 1, 2, and 3 for connecting active, passive, or smart antennas. The 3 pairs are A1/B1, A2/B2, and A3/B3.
- Orange top LED indicates whether 12V antenna bias power is enabled. Bias power is enabled in the [Antenna Pair Settings](#) menus.
- Green middle LED indicates that the antenna input is active. Antenna inputs are enabled/disabled depending on the [Antenna Mode](#) menu setting.
- Green bottom LED indicates that the antenna cascade output is active.

## 8: Antenna Cascade Outs and LEDs

- Cascade outs for looping through antennas pairs 1,2, and 3. The Cascade Outs are nominally at unity gain compared to the antenna inputs. The Cascade Outs are filtered by the A20-SuperNexus internal first stage pre-select filters. If A20-SuperNexus loses power, the antenna inputs are looped through via RF relays to the cascade outputs.
- LED indicates whether a Cascade Out is enabled. Cascade Outputs are enabled/disabled depending on the Antenna Mode and Antenna Pair Settings.

## 9: SFP Ports 1-4

Accepts a variety of Small Form-factor Pluggable (SFP) modular network transceivers. SFP ports 1 and 2 support optical fiber options for Dante, Control, and A20-Outpost-NL connection. SFP ports 3 and 4 are reserved for factory testing.



**10: Ethernet Ports 1 & 2**

2x RJ45 ports for Dante, Control, and A20-Outpost-NL connection. Ethernet port 1 can output PoE+ (max 30 W) for powering peripheral PoE+ devices such as the A20-Outpost-NL.

**11: USB-A Port**

Multi-function USB-A port for:

- Pairing Astral transmitters. Connect the A20-SuperNexus to an Astral transmitter using a USB-C to USB-A cable.
- Connecting a USB keyboard for naming channels, quick setup files and network. The USB keyboard is active whenever the virtual keyboard screen is displayed.
- Mounting a USB flash drive for updating firmware and loading/saving settings.

The USB-A port supports USB hubs so that multiple devices can be connected at the same time. Maximum power output is 5 Watts (5V, 1.0A)

**12: DC Power Input**

10-18V DC, 200W. Powers the A20-SuperNexus and the optional A20-Opto when attached.

**13: Factory Access Cover**

Covers and protects the factory testing ports.

**14: AC Power Input**

100-240V AC, 200W. Powers the A20-SuperNexus and the optional A20-Opto when attached.

**15: AC Mains LED**

Indicates that AC power is connected to the A20-SuperNexus.

## 3.3 Bottom Panel

**1: Expansion Port**

For connecting the optional A20-Opto 1RU expansion chassis to A20-SuperNexus.

## Chapter 4: Powering

The A20-SuperNexus is powered from AC mains (100-240V AC) or DC 10-18V via the 4-pin XLR. AC power takes priority over DC power if both are connected.

The control knob ring LED illuminates blue during power up, then dims once the device has fully booted. When the A20-SuperNexus is first powered on, the last accessed RX View is displayed.

- To power the A20-SuperNexus on, press the triangle button or, with System menu > 'Turn on when power is applied' enabled, simply connect power.
- To power the A20-SuperNexus off, press and hold the triangle button until the 'Powering down ...' progress bar completes.

### 4.1 PoE+ Output

The optional A20-Outpost-NL NexLink extender and other devices can be powered via PoE+. The A20-SuperNexus's RJ45 Port 1 provides PoE+ with a maximum power output of 30W. Enable the PoE+ Output from the System menu.

## Chapter 5: Quick Start

- Connect AC and/or DC power, BNC antennas, SMA NexLink antennas, Network ports (for control and/or Dante), and Audio outputs as required.
- Pair any new Astral transmitters to the A20-SuperNexus using a USB cable. Verify pairing via the [TX List](#).
- Select front or rear NexLink antennas in the [NexLink menu](#)
- Set the A20-SuperNexus and Astral transmitters to the local country. See [System menu](#).
- Select the required [Antenna Mode](#).
- Configure [audio outputs](#).
- Perform a [scan](#) to find and select clear filter ranges for each Tuning Band in use. Availability of various Tuning Bands depends on the selected Antenna Mode.
- For each band, use [AutoAssign](#) to assign clean frequencies to receiver channels. Frequencies are automatically sent to transmitters connected via NexLink.
- Power on Astral transmitters from the [TX List](#) or [1RX Views](#).
- View received RF signals and audio in the [RX Views](#).

## Chapter 6: Navigating the User Interface

The A20-SuperNexus is operated from its front panel triangle button, control knob, HP knob, and eight touch screens or remotely via a web interface.

### Triangle Button

- Press to power up. Press and hold to power down.
- When A20-SuperNexus is powered up, press to cycle between the RX View and Main menu. When in a menu or submenu, the triangle button exits to the menu above.

### Control Knob (Right Knob)

- Rotate to scroll through lists and select parameter values. Press to store.
- Rotate to scroll frequency cursor or adjust horizontal/vertical zoom in the RTSA/Scan view.
- Press and hold > 3 secs to enter Show Mode. Orange borders surround each screen. Tapping an OLED displays a 'The Screen is locked' popup.

### HP Knob (Left Knob)

- Rotate to adjust headphone output level. The headphone gain is displayed momentarily in OLED 1.

### OLED Touch Screen UI Elements

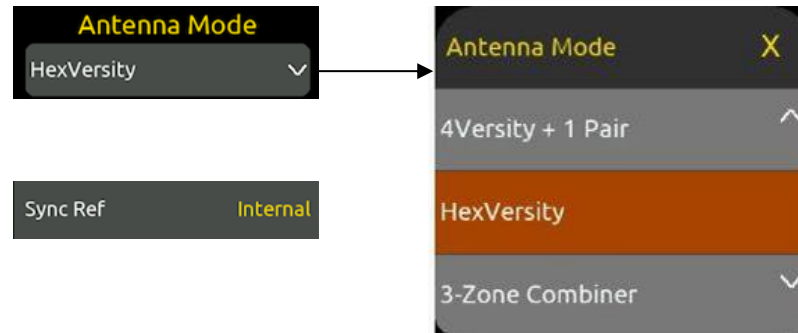
The A20-SuperNexus uses several different UI elements for changing settings i.e. toggle switch, list button, value button, action button, etc.

*Note: When certain OLED UI elements (e.g. list and value buttons) are selected, brightness is reduced, and touch is disabled on all other OLEDs.*

- **Toggle Switch:** Tap to toggle between On and Off. Typically used for functions that have on and off states e.g. Ethernet switch in the Network menu.



- **List Button:** Displays a list of items to choose from. There are two types of List Button as shown, one with external label, one with internal label. The currently selected item or value is displayed inside the button.
  - Tap the list button to display a list of items to choose from.
  - Scroll the list of items by rotating the Control or tapping the up/down arrows, then press the Control knob to select the item and exit the list. Alternatively, tap directly on the list option to select it.
  - To exit the list without making any changes, press the triangle button or tap anywhere in the list's title bar.



- **Value Button:** Displays a parameter's value.
  - Tap to select - the button turns orange.
  - Rotate the Control knob to adjust the value.
  - Press the Control knob or tap the button to exit.



- **Action Button:** A button that initiates a process e.g. Format USB Drive, Unpair etc. The button contains the name of the process.



- **Virtual Keyboard:** appears on OLED screens 3-6 when an alphanumeric name field is accessed. Alternatively use a USB keyboard connected to the USB-A port.



## Chapter 7: RX Views

RX Views display real-time receiver channel data, transmitter signals, and status information across the eight OLED screens. There are several types of RX View:

- All (Displays either 16, 24, or 32 channels, depending on how many channel expansion licenses are installed)
- 16RX View (available when at least one channel expansion license is installed)
- 8RX View
- 1RX View

Select an RX View type from OLED 1



*OLED 1 from a menu*



*OLED 1 from main menu*

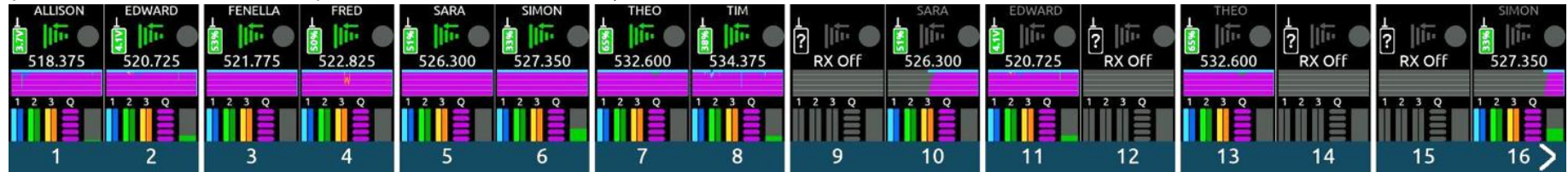
Upon power up, the A20-SuperNexus shows the last displayed RX View.

### 7.1 All View

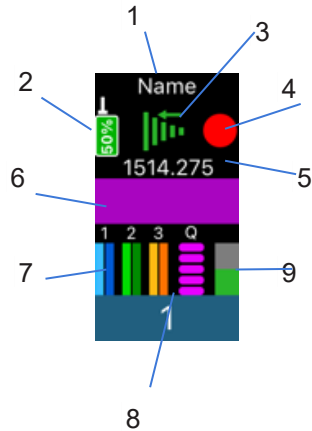
The All View displays all RX channels in one view: 32 channels when 2x channel expansion licenses are installed, 24 channels when 1x channel expansion license is installed, and 16 when no expansion licenses are installed.

## 7.2 16RX View

(‘All’ View when no channel expansion licenses are installed)

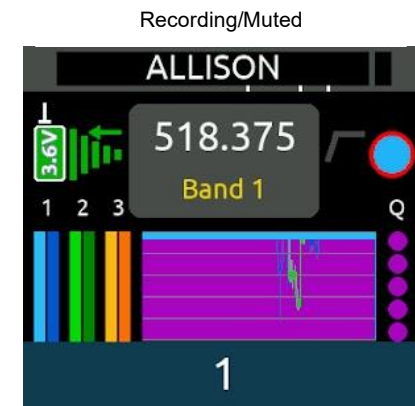
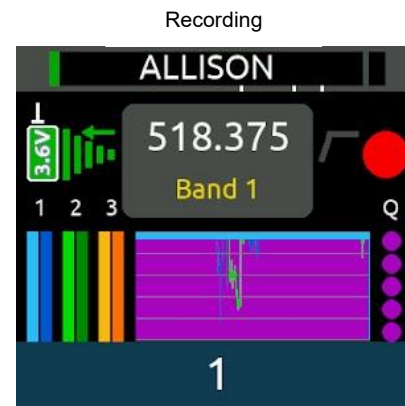
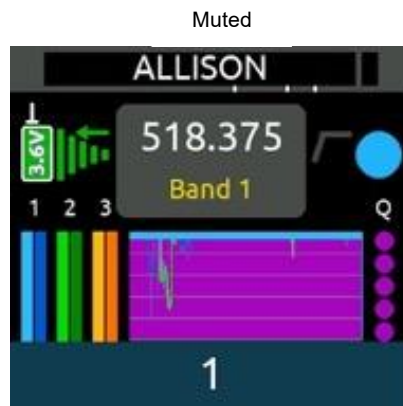


- Displays 16 receiver channel strips, two per screen.
- Tap the right arrow at the bottom of screen eight to bank to the next bank of channels (w/expansion license only).
- Tap any receiver channel strip to display its 1RX View.



1. **Channel Name:** Displays the name of the transmitter that is currently feeding the channel.
  - a. The transmitter name can be edited if the channel is NexLinked to an Astral transmitter.
  - b. The transmitter name cannot be edited if an A10-TX or non-NexLinked Astral transmitter is assigned to it.
2. **Transmitter Battery Level Icon:** Indicates the remaining transmitter battery charge as a color and in % or V depending on the type of battery the transmitter is using. For AA or AAA cells, the battery level is displayed as a voltage. For Sony NP-BX1 type rechargeable cells, battery level is displayed as a %.
  - a. Gray = Transmitter is Off
  - b. Green = Good
  - c. Orange = OK
  - d. Red = Low
  - e. Flashing Red = Depleted (transmitter RF and audio is disabled)

3. **NexLink RSSI Meter:** Indicates the Receive Signal Strength Indication (RSSI) of the 2.4 GHz NexLink signal from the transmitter. The RSSI color signifies the transmitter NexLink status.
  - a. Green = Transmitter is on and NexLink is active
  - b. White = Transmitter is off and NexLink is active
  - c. Gray = No connection or out of range
4. **Record/Mute Status:** Indicates whether the transmitter feeding the receiver channel is recording and/or muted.
  - a. Red = Recording
  - b. Blue = Muted
  - c. Blue fill, red border = Recording and muted
  - d. Gray = Not recording or muted.



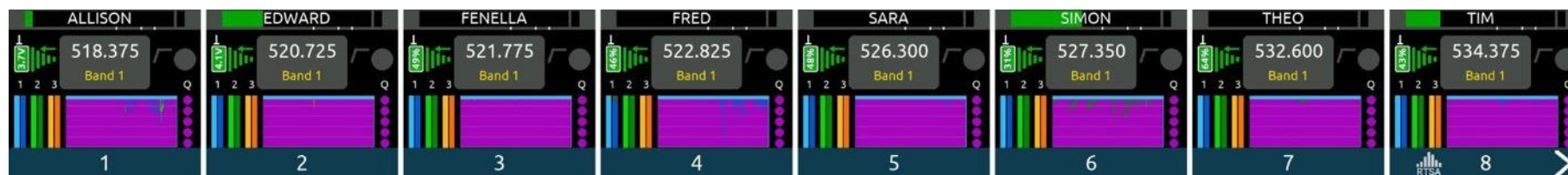
5. **RF Frequency:** Displays the receiver channel's assigned frequency.
  - a. If an Astral transmitter has an active NexLink connection and the NexLink menu > 'Manually set ...' toggle is off, the transmitter will follow the assigned receiver channel frequency.
  - b. Displays 'RX Off' when the receiver channel is Off.
  - c. The frequency flashes red when there is a NexLink issue. Go to the 1RX View > Gear Menu > NexLink Status screen to determine the cause of the issue.
6. **RF History:** Displays the receiver channel's Receive Signal Strength Indication (RSSI), Link Quality (Q), or RSSI + Q history. See [RF History](#).
7. **Antenna Pairs 1,2,3 RSSI Meters:** Indicates the received antenna signal strength from the A and B antennas for each of the three antenna pairs at the RX channel's current frequency. The RSSI meter scale is -100 to -65 dBm. Only the antenna pairs that are feeding the band that the RX channel is assigned to have their RSSI meters displayed. For 3-Zone Combine and 2-Zone Combine + 1 Pair Antenna Modes, the RSSI meters indicate the combined antenna pair levels and are labeled 'X'. See [Antenna Modes](#). The following table describes the color scheme used to identifying the RSSI bars and traces:



Antenna	Color
1A	Light blue
1B	Dark blue
2A	Light green
2B	Dark green
3A	Light orange
3B	Dark orange
X (A) [Combiner mode]	Light blue
X (B) [Combiner mode]	White

8. **Link Q Meter:** Indicates the quality of the received radio frequency signal from the transmitter.
9. **Audio Meter:** Indicates the received audio level from the transmitter. The audio meter scale is -90 to 0 dBFS for GainForward sources and -50 to 0 dBFS for non-GainForward sources.

## 7.3 8RX View



- Displays 8 receiver channels, one per screen.
  - Tap the right arrow at the bottom of OLED 8 to bank to the next eight channels 9-16. In the channels 9-16 bank, tap the left arrow at the bottom of OLED 1 to bank to the previous eight channels 1-8.
  - Tap any receiver channel OLED to display its 1RX View.
  - Tap the RTSA icon at the bottom of OLED 8 to display the RTSA
1. **Channel Name and Audio Meter:** Displays the transmitter (channel) name inside an audio level meter. Tap the meter to edit the name (12-character maximum) using the virtual keyboard.
    - a. The transmitter name can be edited if the channel is NexLinked to an Astral transmitter
    - b. The transmitter name cannot be edited if the channel is being fed from an A10-TX or a non-NexLinked Astral transmitter.

- c. If NexLinked to an Astral transmitter, the name is pushed to the transmitter.



2. **RF Frequency:** Displays the receiver channel's frequency and band (Band 1 = yellow font), (Band 2 = purple font), (Band 3 = white font). Tap to change the frequency and the band.
- a. If NexLinked to an Astral transmitter and the NexLink menu > “Manually set ...” toggle is off , the frequency is pushed to the transmitter.
  - b. Displays 'RX Off' when the receiver channel is Off.
  - c. The frequency flashes red when there is a NexLink issue. Go to the 1RX View > Gear Menu > NexLink Status screen to troubleshoot the issue.
  - d. Tap the Band button to select a different Band (1 - 3) if the Antenna Mode permits it. For example, if the Antenna Mode only requires Band 1 (e.g. HexVersity Mode), then Band 2 and Band 3 are not available for selection. See Antenna Modes. A Tuning Band's filter range can be set from the RF menu, RTSA view, or Scan view.



- e. Tap the frequency button to select a frequency within the current band.
- f. To enter a frequency, tap each frequency field then rotate the Control knob to select a value. Tap OK to store or Cancel to exit without saving. Alternatively, jump through the frequency fields by pressing the Control knob.
- g. To save power, turn off a receiver channel by setting the RX On/Off toggle to Off.

If NexLinked to an Astral transmitter, the frequency is automatically pushed to the transmitter unless *NexLink Menu* > “Manually set ...” toggle is on.

3. **HPF:** Indicates if the HPF is active either on the transmitter (if an A10-TX) or receiver channel (if an Astral transmitter).
4. **Record/Mute:** Indicates if the transmitter is recording and/or muted. Red for record, blue for mute, and blue with red border for both record and mute.




## 7.4 1RX View

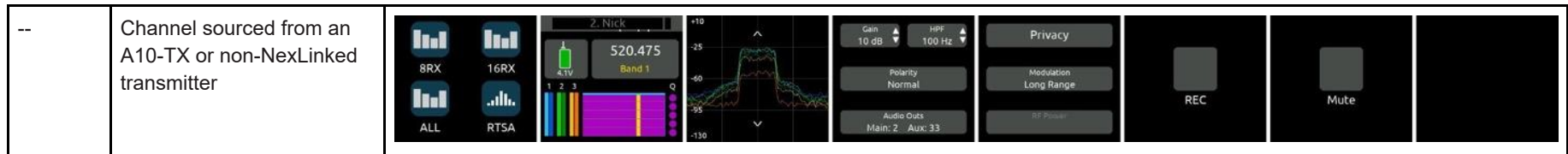
Displays a receiver channel's received signal, audio level, control functions and status across the eight OLEDs.

Use the 1RX View to perform detailed control and monitoring of a receiver channel and its associated transmitter. The 1RX View has different control layouts depending on the following criteria:

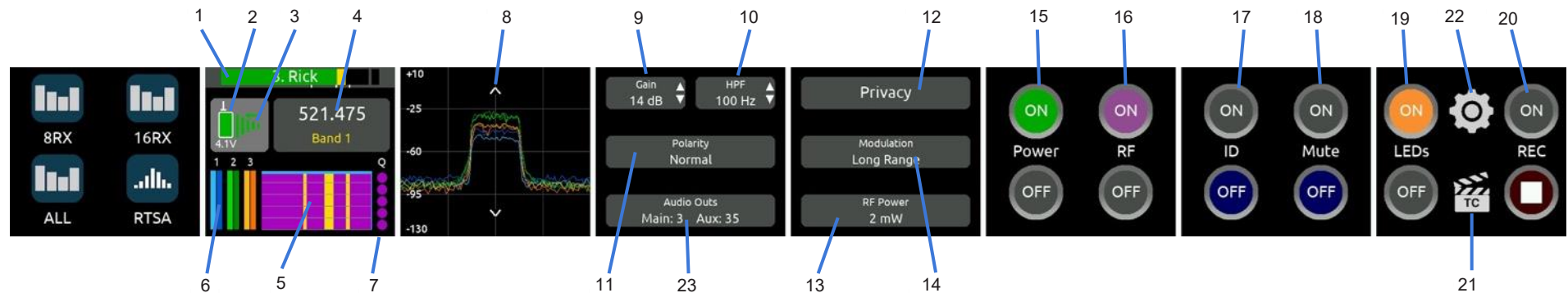
- The model of the transmitter feeding the channel (A20-HH, A20-TX, A20-Mini, or A10-TX)
- Whether the channel is sourced from one or multiple transmitters.
- Whether the channel is sourced from a NexLinked or non-NexLinked (e.g. A10-TX) transmitter.
- Whether the channel's Mode is set to RF Only, REC Only, or REC+RF

Some 1RX View Layout examples

Mode	Description	1RX View Layout									
REC+RF	Channel sourced from a single Astral transmitter  (See Example 1 below for a detailed description)										
RF Only	Channel sourced from a single Astral transmitter										
REC+RF	Channel sourced from multiple Astral transmitters  (See Example 2 below for a detailed description)										



### 7.4.1 Example 1: 1RX View when sourced from a single A20-TX transmitter in REC+RF Mode



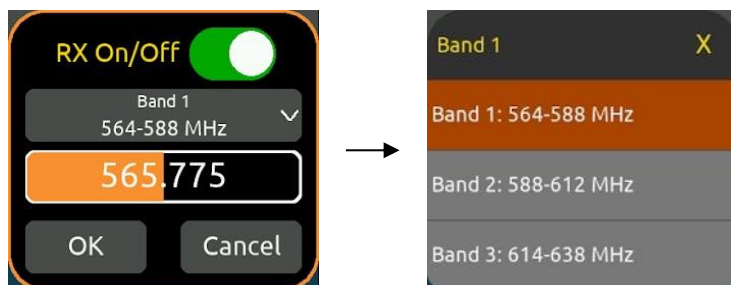
- Rotate the Control knob to navigate to next and previous 1RX views.
  - Navigate to multi-RX Views or RTSA by tapping the icons in OLED 1
  - OLED 3 displays the mini RTSA for the receiver channel's current frequency. It is approx. 1 MHz wide and centered on the assigned frequency. Tap the mini RTSA to jump to the full RTSA for the band that the frequency falls within.
- Channel Name and Audio Meter:** Displays the transmitter (channel) name inside an audio level meter. Tap the meter to edit the name (12-character maximum) using the virtual keyboard. The audio meter scale is -90 to 0 dBFS for GainForward sources and -50 to 0 dBFS for non-GainForward sources, i.e. A10-TX.
    - The transmitter name can be edited if the channel is NexLinked to an Astral transmitter
    - The transmitter name cannot be edited if the channel is being fed from an A10-TX on non-NexLinked Astral transmitter
    - If NexLinked to an Astral transmitter, the name edits are pushed to the transmitter.
  - Transmitter Battery Level Icon:** Indicates the remaining transmitter battery charge as a color and in % or V depending on the type of battery the transmitter is using. For AA or AAA cells, the battery level is displayed as a voltage. For Sony NP-BX1 type rechargeable cells, battery level is displayed as a %.
    - Gray = Transmitter is Off
    - Green = Good
    - Orange = OK
    - Red = Low
    - Flashing Red = Depleted (transmitter RF and audio is disabled)

3. **NexLink RSSI Meter:** Indicates the Receive Signal Strength Indication (RSSI) of the 2.4 GHz NexLink signal from the transmitter. The RSSI color signifies the transmitter NexLink status.
- Green = Transmitter is on and NexLink active
  - White = Transmitter is off and NexLink active
  - Gray = No connection or out of range

For receiver channels that are sourced from a single transmitter, tap the NexLink RSSI meter icon to display the NexLinked Transmitter List from which you can select an Astral transmitter to NexLink to.



4. **RF Frequency:** Displays the receiver channel's frequency and band (Band 1 - Band 3).
- The frequency flashes red when there is a NexLink issue. Go to the 1RX View > Gear Menu > NexLink Status screen to troubleshoot the issue.
  - Tap the frequency button to select a frequency within the current band.



- To enter a frequency, tap each frequency field then rotate the Control knob to select a value. Tap OK to store or Cancel to exit without saving. Alternatively, jump through the frequency fields by pressing the Control knob.
- To save power, turn off a receiver channel by setting the RX On/Off toggle to Off.
- Tap the Band button to select a different Band (Band 1 - Band 3) if the Antenna Mode permits it. For example, if the Antenna Mode only supports Band 1 (e.g. HexVersity Mode), then Band 2 and Band 3 are not available for selection. [See Antenna Modes](#). A Tuning Band's filter range can be set from the RF menu, RTSA view, or Scan view.

If NexLinked to an Astral transmitter, the frequency is automatically pushed to the transmitter unless *NexLink menu > NexLink Tuning Mode* is set to Manual.

5. **RF History:** Displays the receiver channel's RSSI + Q history. See *Menu > RF*.
6. **Antenna Pairs 1,2,3 RSSI Meters:** Indicates the received antenna signal strength from the A and B antennas for each of the three antenna pairs at the RX channel's current frequency. The RSSI meter scale is -100 to -65 dBm. Only the antenna pairs that are feeding the band that the RX channel is assigned to, have their RSSI meters displayed. For 3-Zone Combiner and 2-Zone Combiner + 1 Pair) Antenna Modes, the RSSI meters for combined antenna pairs are labeled 'X'. See [Antenna Modes](#). The following table describes the color scheme used for identifying the RSSI bars and traces for each antenna:

Antenna	Color
1A	Light blue
1B	Dark blue
2A	Light green
2B	Dark green
3A	Light orange
3B	Dark orange
X (A) [Combiner mode]	Light blue
X (B) [Combiner mode]	White

7. **Link Q Meter:** Indicates the quality of the received radio frequency signal from the transmitter.
8. **Mini RTSA:** Shows a window of the RTSA centered on the RX channel frequency, approx. 1 MHz wide.
9. **Gain:** Adjusts receiver channel gain, -6 to 60 dB.
10. **HPF:** Adjusts receiver channel HPF (Off, 40, 60, 80, 100, 120, 160, 200 Hz).
11. **Polarity:** Adjusts the polarity of the channel audio between Normal and Reverse.
12. **Privacy:** Tap to set a Privacy Key. This prevents unauthorized Astral receiver users deciphering the transmitter audio signal. Tap New Key to generate a random 4-digit key or Clear Key, to reset to zeros. The key is pushed to NexLinked transmitters assigned to the receiver channel. When Privacy is set (not a '0000' key), the Privacy button is green to make it easy to see that Privacy is enabled.



*Note: Privacy is not supported with Standard modulation currently. As such, channel audio is muted.*



13. **RF Power:** Sets a NexLinked A20 transmitter's RF power. Options are 2 mW, 10 mW, 20 mW, 40 mW, and 100mW (A20-HH only). RF Power Level options are dependent on TX model, Country, Tuning Band, Frequency Authorization, and whether the 'Allow Extra High RF Power' option is enabled in the Gear menu. The RF Power text changes to a red font if the actual transmitter power is different from that selected RF Power, for example, if a restricted frequency authorization expires.
14. **Modulation:** Sets Modulation between Standard and Long Range. Compared to Standard Modulation, Long Range Modulation has better sensitivity. This increased sensitivity results in better range in challenging RF environments. The Modulation setting must match between the transmitter and the SuperNexus for the transmitted signal to be received. If NexLinked to an Astral transmitter, the Modulation setting is automatically pushed to the transmitter unless the NexLink menu's 'Manually set ...' toggle is enabled.
15. **Power On/Off Buttons:** Tap to power on and off the transmitter and receiver channel.
16. **RF On/Off Buttons:** Tap to enable or disable transmitter RF transmission.
17. **ID On/Off Buttons:** Tap to identify the Astral transmitter. Its LEDs will start flashing and if it's an A20-TX, it will also vibrate.
18. **Mute On/Off buttons:** Tap to mute and unmute the transmitter.
19. **LEDs On/Off buttons:** Tap to enable or disable the Astral transmitter's LEDs.
20. **Record Start/Stop Buttons and Status:** Tap to start and stop the transmitter recording. Record button is red when recording. The record stop/start buttons are not displayed when the Astral transmitters are in RF Only mode.
21. **Transmitter Timecode Status (only available in Rec Only or Rec + RF mode):** Tap the TC Icon to display whether the Astral transmitter has synced successfully to the A20-SuperNexus. Displays 'TC synced' when successfully synced. Tap again to return to the TC Icon.

*Note: Astral transmitters with inserted battery hold timecode accurately for 4hrs after power down, then reset to zero. Without a battery inserted, they hold for 1 hr after power down.*

22. **Gear Menu:** Provides access to further transmitter settings plus NexLink Status alerts. Available options depend on the Astral transmitter model.

Example: A20-TX Gear Menu



- a. **NexLink Status:** Displays various status alerts relating to communication over NexLink. See [NexLink Status Alerts](#)
- b. **Mode:** Sets a NexLinked Astral transmitter's Mode. Options are RF only, REC only, and REC+RF (non-US TX models only or A20-TX models not set to Lav). The A20-HH handheld transmitter does not support REC+RF mode, only RF Only or REC Only modes.
- c. **Resume Rec upon Power Up:** Set to ON to have the Astral transmitter automatically resume recording on power up if it was recording prior to powering down.
- d. **Allow Extra High RF Power:** Allows the selection of 40 mW (and 100 mW if an A20-HH) for RF Power. RF Level availability is dependent on TX model, Country, Tuning Band, and Frequency Authorization.
- e. **Auto-Power w/Lemo Connect:** A20-Mini and A20-TX only. Set to ON to have the Astral transmitter automatically power on when a source is connected.
- f. **A20 Battery Doubler Installed:** A20-Mini Only. When set to YES, the battery remaining % indicator adapts to the A20-BatteryDoubler's discharge characteristics to provide accurate readings.
- g. **Power On When Removed from Power Station:** A20-Mini only. Set to ON to have the A20-Mini automatically power on when removed from the PowerStation-8M.
- h. **A20-TX Switch:** A20-TX Only. Selects the function of the optional toggle switch. Select from None, Power On/Off, Mute On/Off, Record/Stop, Aux On/Off, and RF On/Off.
- i. **XLR Input Type:** A20-TX Only. Select Mic, Line, P12, P48, AES3-1, AES3-2, AES42-1, or AES42-2. If Lav or Guitar are connected to the A20-TX, they are automatically selected. When a Guitar is detected, the Guitar Cable Capacitance and Input Impedance options below are un-grayed.
- j. **Lav Mic Type:** A20-TX Only. Select Normal or 3-Wire. Note that the A20-TX's auto-input type sensing is disabled when set to 3-Wire.
- k. **LED Mode:** A20-TX Only. Select from All, Front Only, or Top Only
- l. **Gtr Cable pF/ft:** A20-TX with guitar cable connected only. Select cable capacitance from 0 to 1500 pF (0 to 60 ft) in 25 pF steps.
- m. **Gtr Input Impedance:** A20-TX with guitar cable connected only. Choose between 100k, 1M, or 10M Ohms.
- n. **Battery Chemistry:** A20-TX Only. Selects chemistry type for 1.5V type batteries: NiMH, Alkaline, or Lithium Primary.
- o. **Control Ring Type:** A20-HH Only. Selects what type of Control Ring is installed on the A20-HH. Select from Control-0, Control-1, Control-3, and Control-Sw.
- p. **Control Ring LEDs:** A20-HH Only. Selects what the selected Control Ring's LEDs should show.



- q. **Slide Switch:** A20-HH with Control-Sw installed only. Selects the function of the slide switch. Select from None, Mute, Rec, Aux Latch, Power, GPIO, and RF.
- r. **Button:** A20-HH with Control-1 installed only. Selects the function of the button. Select from None, Mute, Rec, Aux Hold, Aux Latch, Power, GPIO, RF and PTT.
- s. **Button-L, -C, -R:** A20-HH with Control-3 installed only. Selects the function of the L, C, and R buttons. Select from None, Mute, Rec, Aux Hold, Aux Latch, Power, GPIO, RF and PTT.
- t. **Display LEDs:** A20-HH Only. Selects what the selected ePaper Display's backlight should show.
- u. **Display Background:** A20-TX Only. Selects Light or Dark background color
- v. **Display Orientation:** A20-TX Only. Select between Normal or Flipped.
- w. **Display Name:** A20-TX and A20-HH Only. Select between Top and Center.
- x. **Format TX:** Sends a command to the Astral transmitter to format its recording media. Select OK or Cancel at the 'Are you sure you want to format?' prompt.
- y. **Restore TX Settings:** Sends a command to the Astral transmitter to restore its setting to factory defaults.
- z. **Back ... :** Tap Back to exit the Gear menu.
- aa. **Transmitter Information:** Displays the NexLinked transmitter's model, firmware version and serial number.

**23. Audio Outs:** Tap to access the Audio Output Routing popup from which the RX channel's Main and Aux audio output paths can be selected.



The A20-SuperNexus has 64 audio outputs which can be fed from up to 32 receiver channel main/aux paths. Each of these 64 audio outputs can be selected as feeds for the analog, AES, Dante, MADi, and Optocore (when A20-Opto is connected) output interfaces. Multiple receiver channels can be summed to any of these 64 audio outputs by assigning them to the same main or aux path from the Audio Output Routing popup. When doing so, the following is displayed: "Output already has one or more RX channels routed to it. Continue? OK, Cancel". Select OK to sum the RX channels to the same output or cancel, to cancel the routing.

*Note: When multiple RX channels are summed to the same output, it is possible to clip the output (exceed 0 dBFS). Adjust RX Channel gain controls or the Audio Menu's Global RX Output Gain accordingly.*

*Note: An RX Channel's Main and Aux paths cannot be set to the same Output. "Main and Aux cannot have the same output. Select another output. OK" is displayed if this routing is attempted.*

The Main Audio Output path is typically used as the 'normal' program feed path. The Aux Audio Output path is typically used for talkback purposes but there are myriads of other possible use cases. Aux routing is typically activated from a switch or button on the A20-TX or A20-HH transmitters, but it can also be activated using the RX channels' Aux On/Off toggle switch. Enable the 'Aux Mutes Main' toggle switch to mute the Main feed when Aux is active.

**Main:** Selects the Main program feed output path. Select from Out 1 to Out 64. Factory default is RX Channel 'n' to Main Out 'n'.

**Aux:** Selects the Aux program feed output path. Select from Out 1 to Out 64. Factory default is RX Channel 'n' to Aux Out 'None'.

## 7.4.2 Example 2: 1RX View when sourced from multiple Astral transmitters in REC+RF Mode



Many of the controls are the same as those described in Example 1.

When a receiver channel is sourced from multiple transmitters, the Assigned Transmitters list in OLED 5 displays a list of all transmitters assigned to the RX channel. The transmitter name shown in OLED 2 and in green font in the Assigned Tx list in OLED 5, is the transmitter that is currently being received by the channel.

*Note: In this mode, it is up to the user to have only one assigned transmitter transmitting at a time - otherwise they will interfere with one another. Power On/Off and RF Power buttons are conveniently included in OLED 6/7 to make it easy to ensure only one transmitter is transmitting.*

## Chapter 8: Menus

All A20-SuperNexus settings are organized into menus accessed via the top-level Main Menu. The triangle button cycles between the current RX view and Main Menu. The leftmost OLED displays navigation icons for the various RX views. Tap an RX View icon to jump to its RX View. When in a menu, press the triangle button or tap the leftmost OLED to back out to the menu above.



Menu	Description
1RX	Displays a receiver channel's received signal, audio level, control functions and status across the eight OLED screens.
8RX	Displays 8 receiver channels, one per screen.
16RX	Displays 16 receiver channel strips, two per screen. Only available when an expansion plugin is installed.
ALL	Displays 24 or 32 channel strips depending on how many 8-ch expansion licenses are installed.
TX List	Displays an inventory of paired TXs and which RX channels they are NexLinked to. Handoff, Pair/Unpair & control an individual TX or group of TXs.
RF	Accesses Antenna Mode, Antenna Settings, Band Configuration, RF History, and RF to Band Mapping settings.
RTSA	Displays the Real Time Spectrum Analyzer, a real time spectrum analysis tool for assisting in frequency coordination and selection of clean bands and RF frequencies.
AutoAssign	Accesses the AutoAssign Menu. Can also be accessed by pressing the Control knob when in the RTSA View.
Audio	Accesses audio output routing, headphone output, sync reference, sample rate settings, tone generator settings, audio metering, and A20-Opto Setup.
Network	Network-related settings for Dante and Control, RF Mirror Mode
NexLink	NexLink-related settings including A20-Outpost-NL settings
Timecode	Displays incoming LTC BNC timecode and frame rate
Quick Setup	Load and Save Setup files for quick recall. Setups can be saved to 4 internal memory slots or to an external USB drive connected to the USB-A port.
System	Various system settings including screen, Country, Date/time, Format USB drive, Firmware update, Notifications, Plugins, Web App Password, Macros and more.

## Chapter 9: TX List

The TX List is an inventory of all paired Astral transmitters and which RX channels, if any, they are assigned to. Up to 64 transmitters can be paired with the A20-SuperNexus. 'Pairing' is a process that establishes a NexLink relationship between the A20-SuperNexus and Astral transmitter. Once paired, an Astral transmitter can be controlled and monitored from A20-SuperNexus. Transmitters can also be assigned to user-nameable groups. Up to 8 user groups are available. When one or more transmitters are assigned to a group, that group is displayed at the top of the TX list. An 'All TX Group' is optionally available and will appear at the top of the TX List if the System > Show All TX Group toggle is set to On.

One or more Astral transmitters can be assigned to a single receiver channel. When the A20-SuperNexus is set to 'Automatic' mode (see NexLink>NexLink Tuning Mode), all transmitters assigned to a receiver channel are sent that channel's RX Frequency, Modulation, and Privacy settings. This makes it easy to quickly switch between transmitters assigned to the same receiver channel, particularly useful in live scenarios such as switching to a backup transmitter or switching between a performer's different mics or instruments that are being fed to the same channel on an external mixer.

**NOTE:** When multiple transmitters are assigned to the same receiver channel and frequency, to prevent interference, ensure that only one of those transmitters is actively transmitting.

*TX List with a transmitter row selected. Controls only apply to the selected transmitter. The Audio Offset button in OLED 5 is only available when more than 1 transmitter is assigned to the same receiver channel, in this case, channel 1.*



*TX List with a Group Row selected. Controls apply to all transmitters assigned to that group.*



*TX List with a Group Row selected showing 'Partial' status in OLED 7. The 'Partial' status indicates that at least one of the transmitters in the group is not in sync with the setting's state.*



*TX List > Gear Menu with a Group row selected, showing the other available group functions, Mode, Modulation, and Format TX.*



*TX List showing a Group retry status in OLED 6.*



## 9.1 Pairing an Astral Transmitter to the A20-SuperNexus

To establish NexLink wireless control between an Astral transmitter and the A20-SuperNexus, a new transmitter must be added to the TX List in a process called 'pairing'. Pairing is saved indefinitely over power cycles, and typically only must be done during initial system setup. Once paired, a transmitter can be assigned to a receiver channel ('Chan') and group. Paired transmitters that are not assigned to a receiver channel can still be controlled via NexLink from the TX List. A transmitter can only be paired with one Astral Receiver at a time; however, it is possible to wirelessly 'handoff' control to another Astral Receiver easily - see [Unpairing/Handoff](#).

Pairing automatically assigns the transmitter to the next available receiver channel number, but it is easy to subsequently reassign to any receiver channel. Should a transmitter not be required for a particular production or event, simply remove the receiver channel assignment by setting the transmitter channel number to '-'. Once transmitters are paired, they remain persistently in the TX List until unpaired.

**Note:** When A20-SuperNexus is assigned as a Backup in [RF Mirror Mode](#), its TX List is replaced by the Primary A20-SuperNexus's TX List.



Transmitters can be paired wirelessly or via USB.

## 9.2 Pairing via USB

1. Enter the TX List by tapping the TX List icon in the Main Menu.
2. Connect the Astral transmitter's USB-C port directly to the A20-SuperNexus's front USB-C port or rear USB-A port directly or via a USB hub. It is not necessary for the Astral transmitter to be powered on or for it to have a battery installed during USB pairing.
3. Wait for several seconds while the Astral transmitter pairs to the A20-SuperNexus. The Astral transmitter will appear in the list once discovered, then go through the pairing process (connecting then initializing).
4. Disconnect the USB cable between the Astral transmitter and the A20-SuperNexus.

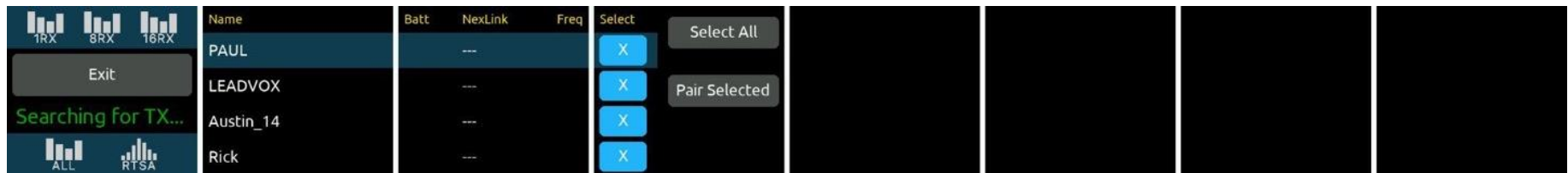
*Tip: Use a USB Hub (or PowerStation-8M) to pair multiple Astral transmitters simultaneously.*

## 9.3 Wireless Pairing

**Note:** A transmitter cannot be wirelessly paired with SuperNexus if the A20-Remote app is open and in communication with it.

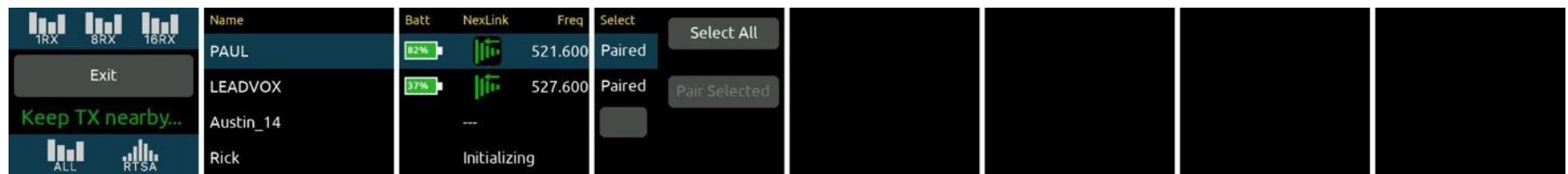
**Note:** When using an A20-Outpost-NL for NexLink control, wireless transmitter pairing requires that both the SuperNexus, and A20 Outpost-NL have their 2.4GHz antennas installed.

1. Put the A20 transmitter into pairing mode as follows:
  - a. A20-Mini: Power off the A20-Mini, then press and hold the red button inside the battery compartment until the Mini's blue light flashes continuously.
  - b. A20-TX and A20-HH: Access the transmitters menu and select Pair. Its blue light will flash continuously and 'Pairing. Please wait ... ' is displayed.
  - c. All TX: Use the TX List's Handoff button from the SuperNexus that currently has NexLink control.
2. Go to the SuperNexus's TX List and tap the search icon in OLED 1 to display the 'Searching for TX' View.



3. Transmitters in pairing mode will be discovered and populate the list.
4. Tap a transmitter's Select box to select/deselect it for pairing to the SuperNexus. A 'X' in a blue Select box indicates that it is selected. Tap Select All to select all transmitters.

5. Tap 'Pair Selected'. When pairing multiple transmitters, the system assesses each TX, starting with the transmitter with the lowest frequency and assigns it to the lowest available RX channel.
6. At the popup, select whether to apply the transmitter's current frequency to the RX Channel.
  - a. Select No to have the SuperNexus send the assigned RX channel's frequency to the transmitter.
  - b. Select Yes to have the SuperNexus get the frequency from the transmitter and assign it to the RX Channel. When assigning to RX channels, the system assesses each TX in turn and assigns it to the lowest available RX channel that is in a band that corresponds to the transmitter's frequency. If it can't find a corresponding band, it will not assign the transmitter i.e. 'RX Chan' is set to '--'.
7. During pairing, the green 'Searching for TX' text in OLED 1 changes to 'Pairing TX'. Pairing progress is indicated in the NexLink column in OLED 3 and changes from 'Waiting' to 'Connecting' to 'Initializing'. The NexLink RSSI icon is displayed once NexLink communication is fully established. Allow the process to fully complete before exiting out of the screen. Leaving the screen before all selected transmitters are paired, displays 'Transmitter(s) are still being paired or being assigned to channels. OK'.



8. Tap Exit once all transmitters have paired.

## 9.4 Unpairing / Handoff

Unpairing or handing off a transmitter breaks its NexLink relationship with the SuperNexus and removes it from the TX List. You may want to do this if you want to clear out unused transmitters from the TX List or hand off NexLink control to another SuperNexus, Nexus, or Nexus Go. Once a transmitter is unpaired or handed off, the SuperNexus can no longer control it via NexLink. Unpairing and Handoff are very similar actions:

- Select Unpair to simply unpair a TX from the SuperNexus and remove it from the TX List. Groups of transmitters cannot be unpaired.
- Select Handoff to unpair and put the transmitter into pairing mode, ready to be paired with another Astral Receiver. Groups of transmitters can be handed off.

To Unpair, rotate the Control knob to select a transmitter in the list, tap the Gear icon (OLED 8) then tap the Unpair button in OLED 8. An 'Are you sure ...' popup appears. Tap OK to unpair and remove the transmitter from the TX List.

To Handoff, rotate the Control knob to select a transmitter or transmitter group in the list, tap Handoff in OLED 5, then select Handoff. This unpairs the selected transmitters and puts them into Pairing mode. They are now discoverable by other A20 Receivers. Follow the instructions in [Wireless Pairing](#) to establish pairing with another A20-Receiver.

## 9.5 TX List Description

The TX List is sorted numerically by receiver channel (Chan) number. When multiple transmitters are assigned to the same receiver channel, they are sorted alphanumerically by transmitter name within the channel number group. The TX List displays the following columns:

- **Name:** The name of the paired transmitter or transmitter group. Tap the name to edit the name. A transmitter group is only displayed in the TX List if at least one transmitter is assigned to it. The name is a maximum of 12 characters long.
- **RX Chan:** The receiver channel number to which the transmitter is assigned. Tap to assign. Unassign by setting to '-'.
- **Batt:** Displays the transmitter's power on/off status and battery level. A battery icon with gray fill indicates the transmitter is powered off. Green, orange or red fill means the transmitter is powered on.
- **NexLink:** Displays NexLink status and RSSI level
  - ---: Waiting to hear from the Astral transmitter.
  - Connecting: Establishing NexLink communication.
  - Initializing: Initializing connection.
  - NexLink RSSI icon: NexLink communication status. One NexLink is established, the buttons and control on OLED screens 5-8 are ungrayed. The icon displays the quality of the NexLink signal.
    - When a transmitter is on, the NexLink RSSI level display is green. Controls on OLED screens 5-8 are active.
    - When a transmitter is off, but NexLink is active, the RSSI level display is white. Controls on OLED screens 5-8 are active.
    - When a transmitter has no NexLink communication (due to being out of range or powered down TX), the RSSI level display is gray.
- **Freq:** Displays the transmitter's frequency.
- **Modulation:** Displays the transmitter's modulation type, Standard, Long Range or T&M.
- **Group:** Assign the selected transmitter to a transmitter group. Grouping allows multiple transmitters to simultaneously respond to a group command such as Power On/Off. There are 8 groups, 1-8. Set to '-' to unassign a transmitter from a group. If no transmitters are assigned to a group, then that group is inactive and does not appear in the TX List. Active groups are displayed as rows at the top of the TX List in ascending numerical order. Tap a group's name to edit it. The group number is shown in parentheses after the group name. A group name can be up to 12 characters long.
- **RF Power:** Tap to set a power level for a transmitter or group of transmitters. The RF Power text changes to a red font if the actual transmitter power is different from that selected RF Power, for example, if a restricted frequency authorization expires.
- **Audio Offset:** Only shown when more than one transmitter is assigned to the same channel. Tap to set a transmitter's audio offset from -20 to +20 dB.
- **NexLink Status:** Tap to display the NexLink status popup. See [NexLink Status Alerts](#). Grayed out when a group is highlighted.
- **Handoff:** Tap to make the selected transmitter or group of transmitters available for pairing to another Astral Receiver.
- **Power On/Off:** Tap to power on/off a transmitter or group of transmitters.
- **RF On/Off:** Tap to enable or disable a transmitter or group of transmitters' RF transmission.
- **ID On/Off:** Tap to ID a transmitter or group of transmitters. The ID'd transmitters flash their LEDs and vibrate if an A20-TX.
- **Mute On/Off:** Tap to mute/unmute the audio of a transmitter or group of transmitters.



- **LEDs On/Off:** Tap to turn LEDs on or off for a transmitter or group of transmitters.
- **REC On/Off:** Tap to start/stop a transmitter or group of transmitters recording.
- **Gear Menu:** Tap to access other transmitter settings on OLED screens 5-8. Available options depend on the Astral transmitter model.
- **TC Icon:** Tap to display the transmitter's TC synced status. The icon is hidden when set to RF Only Mode.

### 9.5.1 TX List Gear Menu



- **Mode:** Set transmitter mode. Choose between RF Only, REC Only, or REC+RF (non-US models only). Note that the A20-HH does not offer REC+RF mode.
- **Modulation:** Sets transmitter and associated channel's RF modulation.
- **Resume Rec upon Power Up:** Set to ON to have the Astral transmitter automatically resume recording on power up if it was recording prior to powering down.
- **Allow Extra High RF Power:** Allows the selection of 40 mW (and 100mW if an A20-HH transmitter) for RF Power.
- **Auto-Power w/Lemo Connect:** A20-Mini and A20-TX Only. Set to On to have the Astral transmitter automatically power on when an audio source is connected.
- **A20 Battery Doubler Installed:** A20-Mini Only. When set to YES, the battery remaining % indicator adapts to the A20-BatteryDoubler's discharge characteristics to provide accurate readings.
- **Power On When Removed from Power Station:** A20-Mini only. Set to ON to have the A20-Mini automatically power on when removed from the PowerStation-8M.
- **A20-TX Switch:** A20-TX Only. Selects the function of the optional toggle switch. Select from None, Power On/Off, Mute On/Off, Record/Stop, and RF On/Off.
- **XLR Input Type:** A20-TX Only. Select Mic, Line, P12, P48, AES3-1, AES3-2, AES42-1, or AES42-2. If Lav or Guitar are connected to the A20-TX, they are automatically selected. When a Guitar is detected, the Guitar Cable Capacitance and Input Impedance options are active.
- **Lav Mic Type:** A20-TX Only. Select Normal or 3-Wire. Note that the A20-TX's auto-input type sensing is disabled when set to 3-Wire.
- **LED Mode:** A20-TX Only. Select from On, Front Only, or Top Only
- **Gtr Cable pF/ft:** A20-TX Only. Set guitar cable capacitance from 0 to 1500 pF in 25 pF steps (0 to 60 ft in 1 ft steps)
- **Gtr Input Impedance:** A20-TX Only. Select guitar amp input impedance from 100K, 1M, or 10M ohm.
- **Battery Chemistry:** A20-TX Only. Selects 1.5V chemistry type: NiMH, Alkaline, or Lithium Primary.
- **Control Ring Type:** A20-HH Only. Selects what type of Control Ring is installed on the A20-HH. Select from Control-0, Control-1, Control-3, and Control-Sw.
- **Control Ring LEDs:** A20-HH Only. Selects what the selected Control Ring's LEDs should show.
- **Slide Switch:** A20-HH with Control-Sw installed only. Selects the function of the slide switch. Select from None, Mute, Rec, Aux Latch, Power, GPIO, and RF.
- **Button:** A20-HH with Control-1 installed only. Selects the function of the button. Select from None, Mute, Rec, Aux Hold, Aux Latch, Power, GPIO, RF and PTT.

- **Button-L, -C, -R:** A20-HH with Control-3 installed only. Selects the function of the L, C, and R buttons. Select from None, Mute, Rec, Aux Hold, Aux Latch, Power, GPIO, RF and PTT.
- **Display LEDs:** A20-HH Only. Selects what the selected ePaper Display's backlight should show.
- **Display Background:** A20-TX and A20-HH Only. Selects Light or Dark background color
- **Display Orientation:** A20-TX and A20-HH Only. Select between Normal or Flipped.
- **Display Name:** A20-TX and A20-HH Only. Select between Top and Center position for the name on the ePaper display.
- **Format TX:** Sends a command to the Astral transmitter to format its recording media. Select OK or Cancel at the 'Are you sure you want to format?' prompt.
- **Restore TX:** Sends a command to the Astral transmitter to restore its setting to factory defaults.
- **Unpair:** Tap to unpair the transmitter from the A20-SuperNexus.
- **Back ...** Returns to previous OLED screens 5-8.
- **Transmitter Information:** Displays the NexLinked transmitter's model, firmware version and serial number.

## 9.6 Assigning a Paired Transmitter to a Receiver Channel

Assigning a paired transmitter to a receiver channel enables synchronization of frequency, modulation, and privacy settings between the transmitter and that receiver channel. Up to 16 transmitters can be assigned to the same receiver channel.

1. Rotate the Control knob to select a transmitter, then tap the 'Chan' box.
2. Rotate the Control knob to choose a channel number, then press the Control knob to store.
  - a. If the selected receiver channel has no transmitters already assigned, the selected transmitter is immediately assigned to that channel.
  - b. If the selected receiver channel already has one or more transmitters assigned to it, a popup is displayed in OLED 2 prompting whether the selected transmitter should be added to that receiver channel or replace the transmitter that is currently assigned to it. If Replace is selected, the replaced transmitter is unassigned from the RX Channel.



- c. If you are only working with a single transmitter per receiver channel, you can select that single transmitter directly from that channel's 1RX View. In the 1RX View, tap the NexLink Icon to display the 'NexLinked Transmitter' List from which you can select an Astral transmitter.

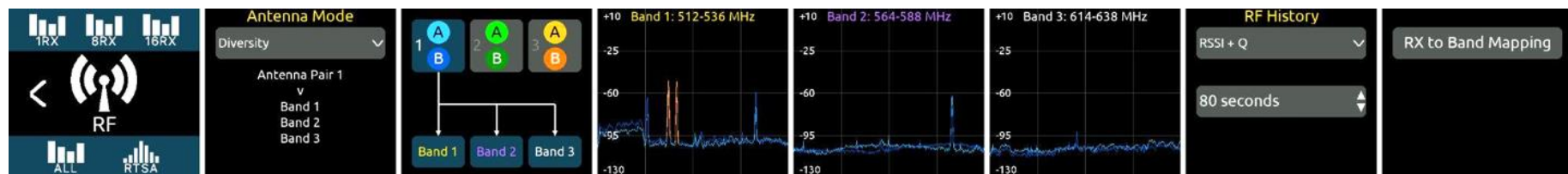
*Tip: Rotate the Control knob to scroll through the TX List. Select a transmitter by highlighting its row, then press the Control knob to jump directly to its receiver channel's 1RX View.*

*Tip: The TX List icon in the Main Menu is yellow if not all transmitters have established a NexLink connection. The icon is green when all transmitters are successfully connected or when no transmitters have been paired.*

*Note: If multiple transmitters are assigned to a receiver channel, only the active transmitter receives group commands.*

## Chapter 10: RF Menu

The RF Menu accesses antenna, band, and RF History settings. From the Main Menu, tap the RF icon to enter the RF Menu.



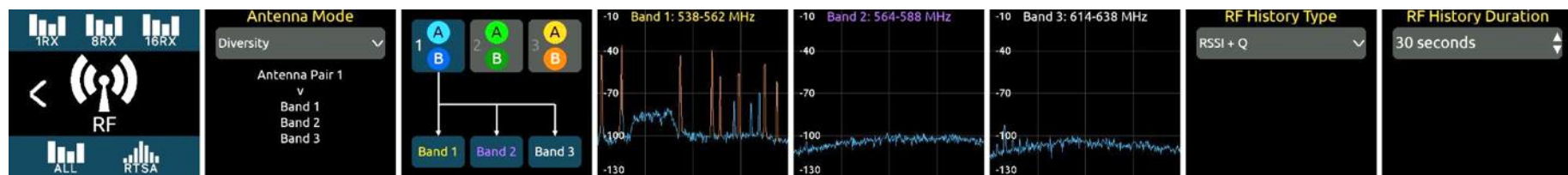
The A20-SuperNexus includes three independent bands each tunable to anywhere within SpectraBand's 169 to 1525 MHz frequency range, making it easy to find clean, usable spectrum. Each of these three bands are fed from user-selectable 'brick wall' filters (mostly 24 MHz wide) providing a total of 72 MHz simultaneously usable spectrum.

The A20-SuperNexus incorporates the most advanced and versatile antenna input configuration capabilities of any receiver on the market, allowing it to be used in many applications from extremely crowded RF environments to multi-zone productions. A20-SuperNexus has 3 pairs of antenna inputs which can be configured in multiple ways, known as [Antenna Modes](#). The Antenna Mode also determines how many bands are active. Before coordinating frequencies, it is best practice to first choose the most appropriate Antenna Mode for the application and operating environment.

Each antenna input pair has an associated zero-loss, cascade out pair, ideal for daisy-chaining to other receivers\*. As a failsafe in the event of power loss, antenna inputs automatically bypass internal circuitry and loop through to their associated cascade outputs so that daisy-chained receivers can continue to receive unattenuated RF signal.

\*When the '3-Zone Combiner' or '2-Zone Combiner + 1 Pair' Antenna Modes are enabled, cascade outputs for Antenna Pairs 2 and 3 are disabled. When set to the 3-Zone Combiner mode, Antenna Pair 1's cascade out is the combined output of all 3 input antenna pairs.

### 10.1 Antenna Modes



Select one of the 8 antenna modes (antenna input configurations) by tapping Antenna Mode in OLED2. A textual description and antenna routing graphic for the currently selected Antenna Mode are displayed in OLED's 2 and 3 respectively. The antenna routing graphic displays how antenna input pairs 1, 2,

and 3 are routed to the bands, Band 1, Band 2, and Band 3 as the Antenna Mode list is scrolled. Active antenna pairs and bands are signified by blue-filled boxes and inactive ones by gray-filled boxes. It is not possible to access settings for inactive antenna pairs or bands.

- Tap an Antenna Pair box 1, 2, or 3 to configure its A and B antennas.
- Tap a band box, Band 1, Band 2, or Band 3 to set its filter range. Bands are color-coded: Band 1 is yellow, Band 2 is purple, and Band 3 is white.

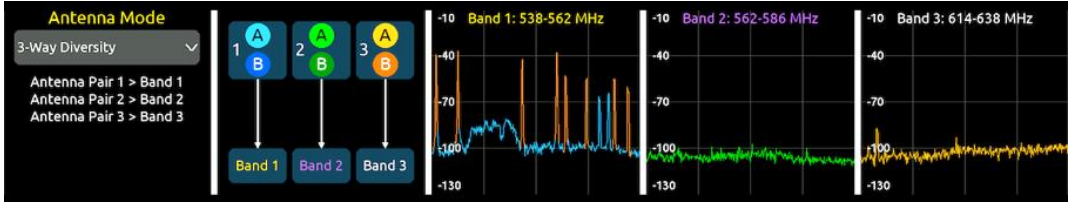
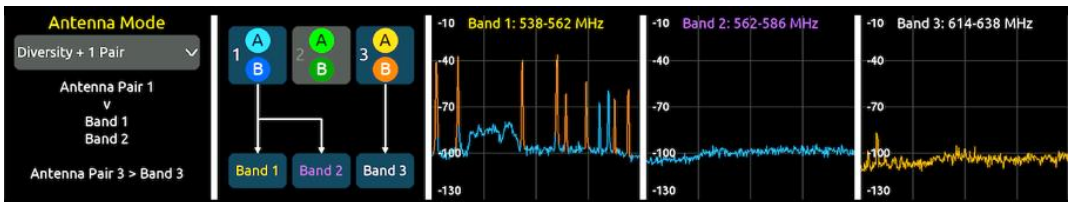
*Note that when changing a Band's filter, audio is temporarily stopped for that band until it is selected. If System > Show Audio Off Warnings is enabled, the following warning popup appears: "Changing Band [n] will stop audio on All channels in Band 'n'. Continue?" ... where [n] is the number of the Band ... 1, 2, or 3.*

### Antenna Mode Details

Antenna Mode	Description	OLED Layout
Diversity	<p>Antenna Pair 1 -&gt; All three Tuning Bands. Antenna Pairs 2 and 3 are disabled.</p> <p>OLED 4 = RTSA for Band 1. Tap to expand RTSA OLED 5 = RTSA for Band 2. Tap to expand RTSA OLED 6 = RTSA for Band 3. Tap to expand RTSA</p> <p><b>Typical Application:</b> Normal diversity antenna deployments where two antennas have the appropriate RF bandwidth to accommodate all selected Tuning Bands and cover the required area.</p>	
4Versity	<p>Antenna Pairs 1 and 2 -&gt; Tuning Band 1. Tuning Band 2 and Band 3 are disabled. Antenna Pair 3 is disabled.</p> <p>OLED 4-6 = RTSA for Band 1. Tap to expand RTSA</p> <p><b>Typical Application:</b> Deployments requiring more robust coverage and/or a larger coverage area. Selected antennas must have appropriate bandwidth to accommodate the selected Tuning Band.</p>	
4Versity+ 1 pair	<p>Antenna Pairs 1 and 2 -&gt; Tuning Band 1. Tuning Band 2 is disabled. Antenna Pair 3 -&gt; Tuning Band 3.</p> <p>OLED 4-5 = RTSA for Band 1. Tap to expand RTSA OLED 6 = RTSA for Band 3. Tap to expand RTSA</p>	



	<p><b>Typical Application:</b> Hybrid deployments requiring a combination of one Tuning Band with more robust coverage and/or a larger coverage area. And another Tuning Band with normal diversity coverage. Antennas can be tailored to meet the needs of the specific Tuning Band they are assigned to.</p>	
HexVersity	<p>All Three Antenna Pairs -&gt; Tuning Band 1. Band 2 and Band 3 are disabled.</p> <p>OLED 4-6 = RTSA for Band 1. Tap to expand RTSA</p> <p><b>Typical Application:</b> Deployments requiring extremely robust coverage and/or a very large coverage area. Selected antennas must have the appropriate RF bandwidth to accommodate the selected Tuning Band.</p>	
3-Zone Combiner (Advanced users only)	<p>Antenna Pairs 1, 2, and 3 are passively combined -&gt; Tuning Bands 1, 2, and 3.</p> <p>OLED 4 = RTSA for Band 1. Tap to expand RTSA OLED 5 = RTSA for Band 2. Tap to expand RTSA OLED 6 = RTSA for Band 3. Tap to expand RTSA</p> <p><b>Typical Application:</b> Deployments requiring three separate, non-overlapping zones of coverage. Selected antennas must have appropriate bandwidth to accommodate the selected Tuning Bands.</p>	
2-Zone Combiner +1 Pair (Advanced users only)	<p>Antenna Pair 1 -&gt; Tuning Band 1. Antenna Pairs 2 and 3 are passively combined -&gt; Tuning Bands 2 and 3.</p> <p>OLED 4 = RTSA for Band 1. Tap to expand RTSA OLED 5 = RTSA for Band 2. Tap to expand RTSA OLED 6 = RTSA for Band 3. Tap to expand RTSA</p> <p><b>Typical Application:</b> Hybrid deployments requiring two separate, non-overlapping zones of coverage and one area of normal diversity coverage. Antennas can be tailored to meet the needs of the specific Tuning Band they are assigned to.</p>	

<p>3-way Diversity</p>	<p>Antenna Pair 1 -&gt; Tuning Band 1 Antenna Pair 2 -&gt; Tuning Band 2 Antenna Pair 3 -&gt; Tuning Band 3</p> <p>OLED 4 = RTSA for Band 1. Tap to expand RTSA OLED 5 = RTSA for Band 2. Tap to expand RTSA OLED 6 = RTSA for Band 3. Tap to expand RTSA</p> <p><b>Typical Application:</b> Hybrid deployments where each Tuning Band requires its own antenna pair. For example, VHF, UHF, and STL band antenna pairs.</p>	
<p>Diversity + 1 Pair</p>	<p>Antenna Pair 1 -&gt; Tuning Bands 1 and 2 Antenna Pair 3 -&gt; Tuning Band 3.</p> <p>OLED 4 = RTSA for Band 1. Tap to expand RTSA OLED 5 = RTSA for Band 2. Tap to expand RTSA OLED 6 = RTSA for Band 3. Tap to expand RTSA</p> <p><b>Typical Application:</b> Hybrid deployments where one set of antennas can feed two Tuning Bands, with the other feeding one Tuning Band. For example, UHF + STL band antenna pairs.</p>	



## 10.2 Antenna Pair Settings

Change settings for the A and B antennas for each antenna pair 1, 2, and 3.



- < (Back): Tap to return to the RF Menu
- Antenna Pair On/Off: Enables or disables the selected antenna pair.
- Gang Settings to Antenna A: Gang all Ant B's settings (except LFA Name and the read-only LFA Version Info) to Ant A's settings.
- Power (Bias): Provides 12V DC bias power for active or smart antennas. When setting Power (Bias) to On, a "Turn on Antenna Bias Power" alert is displayed. Select OK to turn on bias power.
- Cascade out: Enable or disable the cascade output for the selected antenna input.
- Attenuation: For attenuating antenna signal level. Ideal for preventing a) RF overload and b) antenna phase cancellation in overlapping multi-zone applications. Range: 0 to 30 dB in 0.5 dB steps.
- Smart Antenna: Tap to enable remote control of the Wiscom LFA smart antenna. The LFA control settings are grayed out when Smart Antenna is disabled. After turning power bias On, allow about 20 seconds for the smart antenna fields to become accessible. Note that when remote control is enabled, changes on the LFA itself (instead of from the SuperNexus) are not reflected to the Antenna Pair Settings menu until communication with the LFA is disabled then re-enabled. For that reason, always use the SuperNexus for control of the LFA.
- LFA Gain Mode: Sets Gain Mode.
- LFA Gain: Sets gain of Antenna A or B in 1 dB steps. [Off, Bypass, -12 to 27dB].
- LFA Filter Type: Sets the filter type of Antenna A or B.
- LFA Filter Freq: Sets the filter freq of Antenna A or B.
- LFA Name: Displays name of Antenna A/B.
- LFA Display Brightness: Sets Antenna A/B display brightness in increments of 1. [1-10]
- LFA Display Color: Sets Antenna A/B display color. [White, Black]
- LFA Display Timeout: Sets the duration of Antenna A/B display timeout in steps of 1 second. [5 to 240 seconds]
- LFA Display Rotate: Sets the rotation of the Antenna A/B display. [0 or 180]
- LFA LED: Sets Antenna A/B LED activity. [On or Off]
- LFA Version Info: Displays system information about the Wiscom LFA- B-F1.

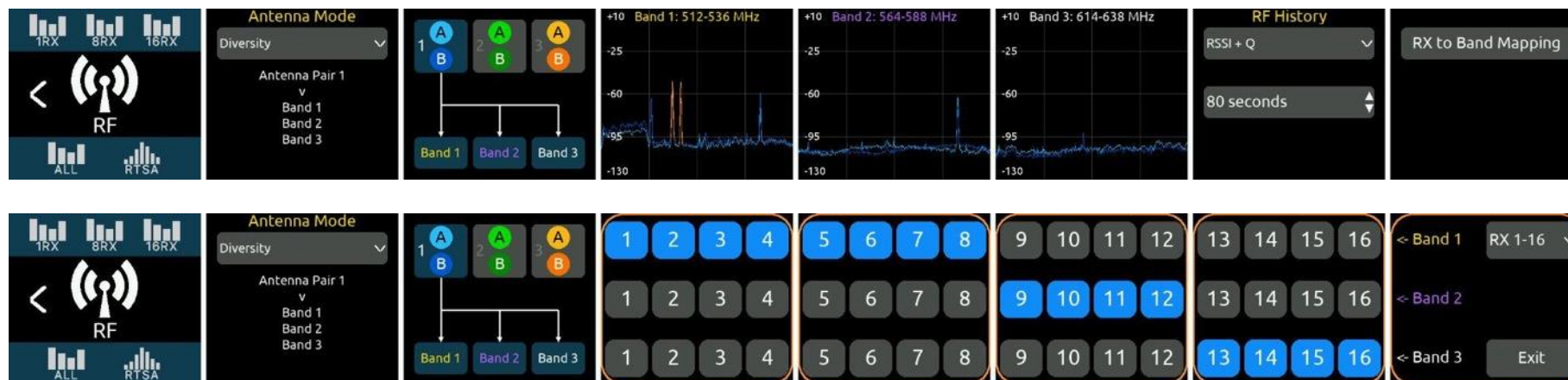
## 10.3 RF History

RF History real time graphs are displayed in the 1RX, 8RX, and 16RX Views. RF History is useful for monitoring recent RF environmental conditions and for troubleshooting RF issues. The graphs display RF signal level (RSSI) and/or link quality history over a specified duration from the 'now' value displayed on the graph's right to the oldest past value on the graph's left.

- **Duration:** Set from 30 to 600 seconds in 10 second steps.
- **Type:** Choose from the following:
  - RSSI: Displays active Antenna Pair A and B RSSI levels as multicolor traces.
  - Link Q: Displays link quality, Q in purple.
  - RSSI + Q: Displays active Antenna Pair A and B RSSI levels plus Link Q. Approaching RF input overload (yellow) and RF input overload (red) are also shown in this mode.

## 10.4 RX to Band Mapping

When operating an Antenna Mode that utilizes more than one band, receiver channel-to-band mapping makes it easy to quickly assign receiver channels to bands. This is also useful for setting which bands the [AutoAssign](#) process should put each RX channel in. In the RF menu, tap RX to Band Mapping in OLED 8 to access the RX to Band Mapping popup on OLED 4-8. The RX to Band Mapping button is grayed out if only one band is active i.e. HexVersity and 4Versity Antenna modes.



Select which RX channels go to which bands. An RX channel can only be routed to a single band at a time. Tap the RX Channels button in OLED 8 to select between RX 1-16 and RX 17-32 (if applicable expansion licenses are installed). Changing Antenna Mode resets all RX channels to Band 1.

## Chapter 11: Antenna RF Overload Indication

The A20-SuperNexus indicates when its antenna inputs are approaching overload or overloading.

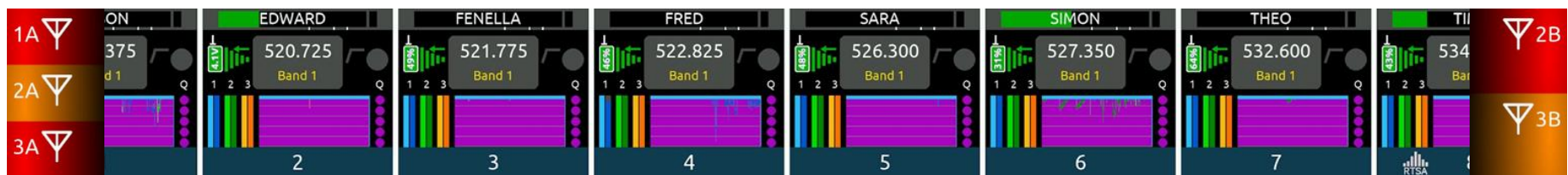
- Red = Overload
- Orange = Approaching overload
- Left indicator (in OLED 1) = Overload status for antennas 1A, 2A, and 3A
- Right indicator (in OLED 8) = Overload status for antennas 1B, 2B, and 3B
- The red and orange indicators are held for a minimum of 2 seconds. Tap the indicator to manually clear it for at least 10 seconds.

Some examples of antenna limiter/overload indication:

*8RX View showing Antenna 1A approaching overload and Antenna 2B overloading*



*8RX View showing Antenna 2A and 3B approaching overload and Antenna 1A, 3A, and 2B overloading*



Approaching overload and overload status are also displayed as yellow and red vertical bars in the RF History when set to RSSI + Q

*Tip: Things to try when an RF signal is approaching overload or overloading an antenna input:*

- Reduce RF power on the transmitter
- If using amplified external antennas, reduce the amplifier gain
- Increase the distance between transmitter and receiver antennas
- Add attenuation to the overloading antenna input from the Antenna Pair Settings menus.
- Use the RTSA screen to examine from where the interference is coming. If the interference is not from the transmitters in use but rather some other sources (such as walkie-talkies), consider changing the Band's frequency range such that the interfering RF signal is moved out of band.

## Chapter 12: RTSA (Real Time Spectrum Analyzer)



The RTSA is a real time, visual spectrum analysis tool for assisting in frequency coordination and selection of clean RF frequencies. The RTSA can operate over the entire SpectraBand range (169 MHz to 1525 MHz). The RTSA trace represents RF signal level (in dBm) on the vertical axis and RF frequency on the horizontal axis. There are 3 RTSAs, one for each of the three bands, Band 1, Band 2, Band 3. The Antenna Mode determines which bands are available. As well as an RTSA, A20-SuperNexus includes a Scan function. The differences between the RTSA and Scan are as follows:

- **RTSA:** Real time analysis of the currently active bands while maintaining reception of multichannel wireless audio.
- **Scan:** Analysis of the entire or user-selectable portions of the 169 MHz - 1525 MHz spectrum. The trace is refreshed every few seconds. All channel audio is muted while scanning.

### Typical Workflow

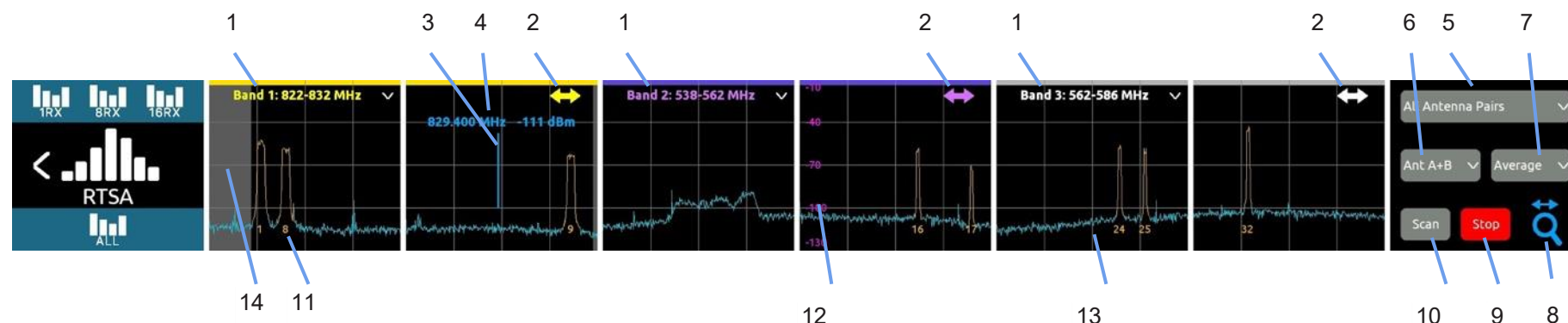
It is best practice to first use the Scan tool to find the cleanest band, then use the RTSA or AutoAssign to find the cleanest frequencies within that band. Once clean frequencies are found they can be assigned to receiver channels and their associated NexLinked transmitters directly from the RTSA or AutoAssign views.

### Mini RTSA in the 1RX View (OLED3)



- Displays a 1 MHz wide section of the RTSA centered on the frequency of the RX channel.
- The vertical 'dBm' scale can be changed by tapping the up/down arrows.
- Tap the center of OLED 3 to switch to the expanded RTSA view for the band that the channel is in.

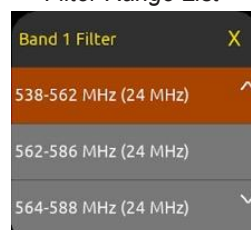
## Multi-RTSA View



Tap the Main Menu RTSA icon to access the RTSA View. The Antenna Mode determines which of the three bands, Band 1, Band 2, and/or Band 3 are displayed.

1. **Filter Range:** Shows the selected filter range for each of the tuning bands, Band 1, Band 2, Band 3. Tap to select a different filter for the selected band. If System > 'Show Audio Off Warnings' is enabled, a popup appears to warn that audio will stop on all channels if the band's filter range is changed. Select OK in the audio warning popup to display a list of the available filters in OLED 8. The current Country setting determines which tuning bands are available. See System Menu for more information on setting the Country.

## Filter Range List



With the filter list open, rotate the Control knob to scroll through the list. To make it easy to select a filter range with the least amount of RF congestion, the filter and its RTSA display switches 'live' as the list is scrolled. Tap the filter list title bar to close the list.

## Quick Recall of a Band's Assigned Frequencies

Each Band's assigned receiver channel frequencies are stored and automatically recalled when selecting the Band. This is particularly useful for:

- Quickly comparing the RF performance of assigned frequency groups as you switch between Filter Ranges.
- Pre-configuring alternate Filter Ranges with pre-assigned frequencies to prepare for unforeseen changes in the RF environment.

*Note: Each Filter Range's assigned frequencies are cleared when A20-SuperNexus is powered down.*



2. **Expand and Collapse Arrows (<-->, --> <-->):** Tap <--> to expand the selected individual band's RTSA across OLED screens 2-7. Tap the --> <--> icon in OLED 7 to return to viewing all bands' RTSAs. Note that expand and collapse arrows are only displayed when more than one band is active.

#### Expanded Individual RTSA View



3. **Blue Frequency Marker:** Tap the vertical center of OLED screens 2-7 to locate the blue frequency marker at any desired frequency. To more precisely position the marker, rotate the Control knob with the Zoom tool set to horizontal scroll mode (blue Zoom Tool icon). Select the scroll mode by tapping the Zoom icon. The blue frequency marker can be used to identify a specific frequency and its received signal strength.

#### Press the Control knob to display the "Assign Frequency To:" list.



The list provides the following options:

- Assign the blue frequency marker's frequency to any receiver channel.
  - Select 'Auto Assign All' to automatically scan and assign multiple clean frequencies. See [AutoAssign](#) for more information.
4. **Marker MHz/dBm:** Displays the blue Frequency Marker's current frequency and dBm value.
5. **Antenna Pair Display:** Selects which antenna pair RSSI traces to display.
- Antenna Pair 1
  - Antenna Pair 2
  - Antenna Pair 3
  - All Antenna Pairs

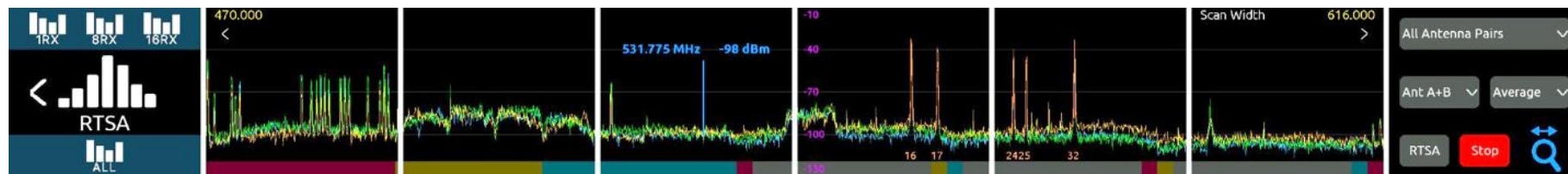
*Note: Only active Antenna Pairs are displayed in the Antenna Pair list.*

6. **Antenna Options:** Selects which antenna (Ant) signals are displayed, dependent on which Antenna Pair is selected in the box above. Changes are displayed in real time as the list is scrolled.
  - a. Ant A: Only antenna A traces for the selected pair(s) are displayed
  - b. Ant B: Only antenna B traces for the selected pair(s) are displayed
  - c. Ant A+B: Highest of Ant A and Ant B traces for the selected pair(s) are displayed
  - d. Ant A, B: Both Ant A and Ant B for the selected pair(s) are displayed.
7. **Trace Type:** Sets the trace characteristic. Choose from Normal, Average, or Peak Hold.
8. **Zoom Icon:** Tap the Zoom icon to cycle the Control knob's rotate function between the three zoom modes:
  - a. Blue frequency marker locator. Tapping OLEDs to locate the frequency marker automatically changes the Zoom icon to the blue frequency marker locator.
  - b. Yellow - horizontal frequency zoom. When selected, rotating the Control knob horizontally zooms in and out of the Band that the blue frequency marker is currently located in. The Band Frequency Range label shows the start and end frequencies of the Band's zoomed display.
  - c. Pink - vertical dBm zoom.
9. **Stop/Start Button:** Tap to start or stop the RTSA or Scan. Pressing stop freezes the current display.
10. **Scan/RTSA Button:** Tap to switch between RTSA and Scan modes. When switching to Scan mode, the following popup is displayed if System > 'Show Audio Off Warnings' is enabled.

"Changing to Scan Mode will stop audio on ALL channels. Continue? [OK, Cancel]"

11. **RX Channel Indicator:** Indicates the frequency and channel number of an enabled receiver channel. The channel number and frequency portion of the trace that is associated with that number, is highlighted orange. Tap the orange number to jump directly to that channel's 1RX View.
12. **Vertical dBm scale:** Displays the vertical dBm scale. Adjust the scale using the Pink Zoom Tool. Choose from +10 to -130dBm, -10 to -130 dBm, -30 to -130 dBm, and -50 to -130 dBm.
13. **Trace:** The real time trace of the received RF spectrum.
14. **Restricted Frequency Band:** Vertical gray region indicates inaccessible restricted frequencies.

## Chapter 13: Scan Mode



Use Scan mode to view the whole or any section of the 169 MHz - 1525 MHz spectrum. Scan mode makes it quick and easy to find and assign clean Filter Ranges for each of the three Bands.

Access Scan mode by tapping the Scan button in OLED 8 of the RTSA View. The complete scan trace is refreshed every few seconds.

*Note: Scan mode uses all active antenna inputs to scan the selected spectrum. Changing to Scan mode stops audio on all channels.*

*Note: When the Scan view is selected, the Web App RTSA menu switches to Scan view too, and vice versa.*

The scan trace width and start/end points can be adjusted in several ways:

1. Tap 'Scan Width' at the top of OLED 7 to display the Scan Width popup. Enter a Start and End frequency of reset to the default 470-616 MHz setting.



2. Select the zoom horizontal tool by tapping the zoom icon in OLED 8 until the yellow zoom icon is displayed. Rotate the Control knob clockwise to zoom in and counterclockwise to zoom out.
3. Tapping '>' banks to the next range of frequencies with the same width. For example, if 470 to 616 MHz is currently displayed, tapping '>' will display 616 to 762 MHz
4. Tapping '<' banks to the previous range of frequencies with the same width.

*Note: When entering Scan mode, the last selected range is shown.*



*Note: The scan trace shows the various selectable filter ranges as colored regions at the bottom of the display. Filter ranges can overlap. These overlapping ranges are shown as gray regions.*

To select a filter range and assign it to a band:

- Locate the blue frequency marker anywhere within a filter range's colored region, then press the Control knob to display the 'Assign Filter To:' list.
- Select which Band to assign to. When a Band is selected, the RTSA mode is automatically displayed for that Band.
- If only Band 1 is active (Antenna Modes '4Versity' and 'HexVersity'), the 'Assign Filter To:' step is bypassed, and Band 1 is immediately assigned and displayed.
- If Antenna Mode is set to '4Versity + 1 pair', only Band 1 and 3 are available in the 'Assign Filter To:' list.



- If the blue frequency marker is located within an overlapping band 'gray' region, pressing the Control knob will display a prompt asking to select the Upper or Lower Band prior to displaying the Assign Band To: list. Cancel the prompt by pressing the triangle button.

## Chapter 14: AutoAssign

Use AutoAssign to find and automatically assign multiple clean frequencies to selected RX channels. AutoAssigned RX Channel frequencies are by default, automatically sent to their assigned NexLinked transmitters.

AutoAssign assigns clean frequencies on a per band basis i.e. channels are AutoAssigned within the band they are currently assigned to. For example:

- Bands 1, 2, and 3 are active (e.g. Diversity, 3-Zone Combiner, or 3-way Diversity Antenna Modes)
- RX Channels 1-3 are currently mapped to Band 1, channels 4-5 to Band 2, and channels 6-8 to Band 3
- AutoAssign will assign channels 1-3 within Band 1, channels 4-5 within Band 2, and channels 6-8 with Band 3.

If AutoAssign is instigated from a band that has no channels currently assigned to it, the following alert is displayed:

"No channels are assigned to Band 'n'. Assign channels from the RX to Band Mapping menu. OK"

When this occurs, select the channels you want to AutoAssign within the required band from a) the RF > [RX to Band Mapping](#) menu or b) the 1RX or 8RX view; tap the RF Frequency button, tap the Band 'n' button and select the required band or c) Assign channels to a band by accessing the band's RTSA and manually assigning channels.

Only bands that are active for the current Antenna Mode are available for selection.

*RF Frequency Button*



### The AutoAssign Process

AutoAssign performs the following steps:

- Disables RF for those transmitters assigned to selected RX channels. (RX channels are selected by tapping the Select Channels button in the AutoAssign view)
- Stops audio on all channels.
- Analyzes the selected AutoAssign range for clean frequencies and assigns them to enabled RX channels and their paired transmitters.
- RF is re-enabled for those transmitters that were ON prior to the AutoAssign process.
- If it is not possible to find clean frequencies for all the selected RX channels, a popup displays how many channels out of the total were assigned.

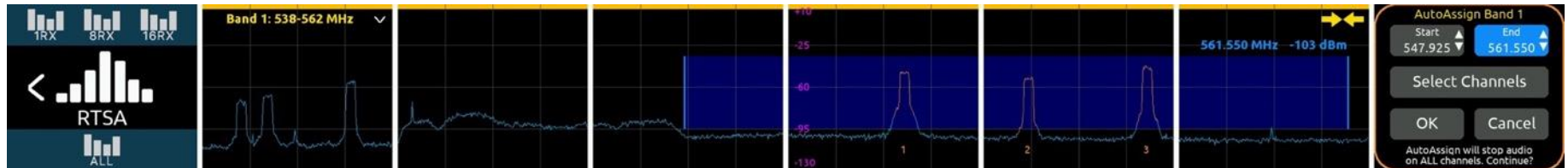
## How to Start the AutoAssign Process

1. Tap the AutoAssign icon from the Main Menu. If multiple bands are active, the multi-band RTSA view is displayed with the AutoAssign popup in OLED 8. If only one band is active, the individual (expanded) RTSA for that band is displayed. From the multi-band RTSA, tap a band's expand icon (<-->) to display its individual band RTSA.

### Multi-band RTSA



### Individual band RTSA



2. Tap Select Channels in OLED8 to display the Select Channels popup. Choose which channels to AutoAssign, then tap Done.



3. Tap OK to start the AutoAssign process.

4. From an individual band's RTSA:
  - a. Tap the display or rotate the Control knob to position the AutoAssign vertical start marker at the frequency where the AutoAssign range should start.
  - b. Tap the End button in OLED8, then tap the display or rotate the Control knob to position the AutoAssign vertical end marker at the frequency where the AutoAssign range should end.
  - c. Tap Select Channels to display the Select Channels popup. Choose which channels to AutoAssign, then tap Done.
  - d. Tap OK to begin analyzing the selected range.

*Note: By default, the full range of the individual band is selected.*

*Note: It is not possible to select a range less than 1 MHz*

*Note: It is not possible to set an End frequency lower than the Start frequency. (This is most likely to happen if Band 2 or Band 3 is a lower Band than Band 1.)*

AutoAssign can also be instigated from the RTSA View:

1. Press the Control knob to display the 'Assign Frequency To:' list.
2. Select 'Auto Assign'.

*Note: Channels are not necessarily assigned in numerical order from lowest to highest frequency.*

## Chapter 15: Audio Outputs

The A20-SuperNexus has 64 audio outputs which can be fed from up to 32 receiver main/aux paths. Multiple receiver channels can be summed to any audio output by assigning them to the same main or aux path from their 1RX Views. These 64 audio outputs are fed to other devices via the analog, AES, Dante, and MADI physical output interfaces. SuperNexus can also be set up to convert incoming Dante channels 1-32 to analog and/or AES outputs. Additional Optocore, MADI, AES, and analog outputs are available when the optional [A20-Opto](#) interface is docked to the A20-SuperNexus. All Audio and Sync settings are configured from the Audio Menu.

*SuperNexus, no A20-Opto connected*



### 15.1 Sync Reference

The A20-SuperNexus's digital audio outputs can be synchronized to the following sync reference sources:

- Internal
- LTC/WCK BNC In. The A20-SuperNexus auto-detects whether the incoming signal is wordclock or timecode
- Dante
- MADI In
- MADI In (96k SMUX)
- Optocore In (when A20-Opto is connected)

The following table indicates how the digital output sample rate is determined for each type of sync reference source:

Sync Reference	SuperNexus Sample Rate Setting
Internal	48k or 96k
BNC In (Word Clock)	Determined by the incoming Word Clock frequency
BNC In (LTC)	48k or 96k
Dante	Determined by the Dante In sample rate
MADI In	Determined by the MADI In sample rate
MADI In (96k SMUX)	Determined by the MADI In sample rate when connected to a 96k SMUX MADI clock
Optocore In	Determined by the Optocore In sample rate. Optocore is only available when the A20-Opto is connected.

- If a valid sync reference is not detected, the A20-SuperNexus switches to its internal clock, the Control knob ring LED flashes orange and the following alert message is displayed:

*"The selected sync reference is not present or is invalid. Please check Sync Ref setting."*

Select OK to clear the message. It will reappear after 1 minute if a valid sync reference is not present.

- When synced to Internal, Dante, or MADI, the BNC In port can simultaneously be used as an LTC timecode source.

## 15.2 Sample Rate

- The sample rate of the AES, MADI, and Dante digital outputs is determined by the Sample rate and Sync Reference settings.
- The SuperNexus outputs digital audio at 48 or 96 kHz sample rates. Factory default is 48 kHz.
- The sample rate can only be set when the Sync Reference is set to Internal or BNC In (when receiving timecode). Otherwise, the sample rate field is read-only.

## 15.3 96K MADI Format

The 96 kHz MADI Format setting determines the order of odd and even samples for each channel in the 96 kHz MADI streams. Choose between:

- Hi-Speed [Odd samples for all channels followed by even samples for all channels]
- SMUX [Pairs of odd/even samples for each channel in sequence]

## 15.4 A20-Opto Setup

Ungrayed when an A20-Opto is connected. This button accesses various settings for the A20-Opto. See [A20-Opto](#)

## 15.5 Dante Outputs

The A20-SuperNexus Dante Outputs 1-64 (Dante transmit channels) are fed directly 1:1 from Audio Outs 1-64

Use Dante Controller running on a MAC or PC computer to route A20-SuperNexus's Dante outputs to any Dante device on the network. See <https://www.audinate.com/products/software/dante-controller>.

When A20-SuperNexus is to be used as clock leader for the Dante network, ensure the following:

- A20-SuperNexus is set to Internal sync reference.
- In Dante Controller, set A20-SuperNexus to be Preferred Leader.
- In Dante Controller, set A20-SuperNexus to 'Enable Sync to External'.

*Note: The A20-SuperNexus stores its Dante routing to/from other Dante devices, even after power cycling. As such, once setup, the computer running Dante Controller is no longer required unless the routing needs to be changed.*

The A20-SuperNexus is identified on a Dante network by its 'SuperNexus Name'. The default A20-SuperNexus Name is SuperNexus-[last 6 characters of the A20-SuperNexus's MAC address]. This name can be changed using Dante Controller or from the A20-SuperNexus's Network menu.

## 15.6 AES Outputs

The A20-SuperNexus has 32 AES3 balanced digital outputs on 4x RJ45 connectors conforming to AES72 Type 1M wiring. Shielded CAT cable must be used to provide a common ground for the twisted pairs. The AES outputs can be sourced from A20-SuperNexus audio outs or Dante inputs in blocks of 8 channels. Each block of 8 AES3 outputs can be sourced from:

- Audio Out 1-8
- Audio Out 9-16
- Audio Out 17-24
- Audio Out 25-32
- Audio Out 33-40
- Audio Out 41-48
- Audio Out 49-56
- Audio Out 57-64
- Dante In 1-8
- Dante In 9-16
- Dante In 17-24
- Dante In 25-32

## 15.7 Analog Outputs

The A20-SuperNexus has 32 balanced analog outputs on 8x RJ45 connectors conforming to AES72 Type 1M wiring. Shielded CAT cable must be used to provide a common ground for the twisted pairs. The analog outputs can be set to line, -10, mic, or Guitar level and can be sourced from A20-SuperNexus audio outs or Dante inputs in blocks of 8 channels.

Tap an Analog Out button to bring up that analog output's routing and level settings popup:



Each block of 8 analog outputs can be sourced from:

- Audio Out 1-8
- Audio Out 9-16
- Audio Out 17-24
- Audio Out 25-32
- Audio Out 33-40
- Audio Out 41-48
- Audio Out 49-56
- Audio Out 57-64
- Dante In 1-8
- Dante In 9-16
- Dante In 17-24
- Dante In 25-32

## 15.8 MADI Outputs

The A20-SuperNexus has 2x MADI outputs on 2x BNC connectors. At 48k, both MADI Outputs carry Audio Outs 1-64 i.e. MADI Out 2 duplicates MADI Out 1. At 96k, MADI Out 1 carries Audio Outs 1-32 and MADI Out 2 carries 33-64. For 96 kHz applications, the MADI outputs can be configured as Hi-Speed or SMUX 96k MADI format using the 96k MADI Format setting.



## 15.9 Tone Generator

Enable the Tone Generator to send a tone (sine wave) at a specific level and frequency to selected RX Channel outputs. The tone level can be adjusted from -20 to 0 dBFS and the tone frequency from 10 Hz to 20 kHz. When the Tone toggle is enabled, a popup appears confirming whether to turn on the tone or not. Tap Yes or No.

- **Tone Routing:** Tap to display Tone to RX channel routing screens. Select which RX channel outputs to route the tone to. When activated, the tone signal will be viewable on the selected RX channel audio meters in the RX Views. Tone on selected RX channels is fed to external devices by routing them to physical analog and digital outputs via the main and aux feeds to Audio Outs 1-64 in OLED 4 of the 1RX Views. To output via analog or AES, make sure to select the applicable Audio Outs in the Analog and AES source drop down lists. Audio Outs 1-64 are directly fed 1:1 to Dante, MADI, and Optocore outputs 1-64.



1RX View OLED 4



- **Tone Level:** Adjust the global tone level from -20 to 0 dBFS in 1 dB steps
- **Tone Frequency:** Adjust the global tone frequency from 10 Hz to 20 kHz (10 Hz steps up to 1 kHz; 100 Hz steps from 1 kHz to 20 kHz)

## 15.10 Headphone Output

The A20-SuperNexus's 3.5 mm and ¼" stereo headphone outputs provide monitoring of the Nexus's receiver channels or Dante inputs.

- Set headphone volume [-40 to 40 dB] by rotating the HP knob. HP volume is briefly displayed in screen 1.
- Headphone Output Routing
  - RX 1-16 St (1-32 with 2 expansion licenses): Monitors receivers 1-16 (1-32) with odd receiver output routed to the left ear and even receiver output routed to the right ear.
  - RX 1-16 Mono (1-32 with 2 expansion licenses): Monitors receivers 1-16 (1-32) mono'd to both ears.
  - Dante 1-32 St: Monitors Dante In 1-32 with odd Dante channels routed to the left ear and even Dante channels routed to the right ear.
  - Dante 1-32 Mono: Monitor Dante In 1-32 mono'd to both ears.
- When viewing a receiver channel's 1RX View, that receiver channel is solo'd in both ears.

## 15.11 Global RX Output Gain

Apply global audio gain to all RX channel outputs. This can be utilized to provide optimal audio level to downstream mixing consoles and other devices. It is best practice to add most gain at the downstream device and keep the Global RX Output Gain as low as possible to prevent clipping. Audio meters are displayed in OLED screens 7 and 8 to help set the gain. Gain adjusts from 0 to 40 dB.

## 15.12 Audio Meters

Audio meters for Audio Outs 1-64 are displayed in OLED screens 7 and 8. The meter scale uses colors to signify level thresholds as follows:

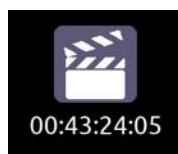
- Green: up to -20 dBFS
- Yellow: -20 to -12 dBFS
- Orange: -12 to -1 dBFS
- Red: 0 dBFS, clipping



## Chapter 16: Timecode

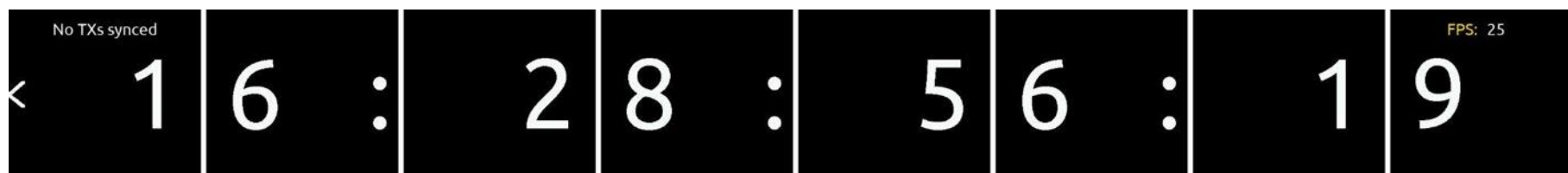
With NexLink, the A20-SuperNexus can simultaneously sync multiple Astral transmitters when they are set to REC only or REC+RF mode. This feature ensures zero-frame drift between multiple recording transmitters, making it easy to synchronize them in post especially when the free SD-Utility software tool (<https://www.sounddevices.com/sd-utility-v2-00/>) is used to conform and merge the individual Astral transmitter recordings into a single polyphonic wav file.

The Timecode menu displays incoming LTC and its frame rate. Tap the timecode slate icon in the Main Menu to access the Timecode menu. The incoming timecode is displayed below the icon making it unnecessary to enter the Timecode menu to check valid timecode is being received. The A20-SuperNexus receives timecode via the rear panel LTC / WCK BNC In port and automatically detects whether a wordclock or timecode signal is connected. When the source is timecode, the frame rate is automatically detected.



### 16.1 Syncing Astral transmitters to A20-SuperNexus timecode.

- The A20-SuperNexus automatically syncs timecode to all NexLinked Astral transmitters when a timecode source is plugged into the LTC / WCK BNC In port. When synced, the Astral transmitters' blue timecode LED blinks for about 10 seconds and the A20-SuperNexus displays 'TC synced' in the respective 1RX View > TC menus (accessed by tapping the TC Icon).



- The top of OLED 1 displays how many of the NexLinked transmitters are synced. If no transmitters are synced, "No TXs synced" is displayed.
- If at least one transmitter that is set to REC or REC+RF mode has not synced successfully, the timecode display will change from white to red.
- Tap the < arrow in OLED 1 to return to the previous screen.

*Note: When Astral transmitters are powered down, timecode count is held for 4 hours. After 4 hours, timecode is reset to zero. When batteries are removed from Astral transmitters, timecode count is held for 1 hour. After 1 hour, timecode is reset to zero.*

## Chapter 17: Network

The A20-SuperNexus supports both Dante AOIP and control over IP. The built-in web server allows the A20-SuperNexus to be controlled via the Web App running via a web browser on any computer, tablet, or smartphone.

From the Main Menu, tap the Network icon to access the Network menu. The Network menu provides network settings for Dante and Control as well as access to RF Mirror Mode.



Incorporating a 4-way network switch with two RJ45 ports and two SFP ports, Dante & Control can be combined or segregated between the ports from the Network > Port Configuration screen (OLED 3).

*Note: When making Dante network changes (SuperNexus Name, Port Configuration, IP addresses, etc.), it is necessary to either reboot the A20-SuperNexus or Restart Network.*

### 17.1 SuperNexus Name

Tap to enter a unique name for the A20-SuperNexus. The name is used as the Dante Device name in a Dante network and the network device name in a Control network. The Name must not start or end with a dash (-). The factory default A20-SuperNexus Name is SuperNexus-[last 6 characters of its MAC address]

### 17.2 Port Configuration

Determines whether a port supports Control, Dante, or both.

When Dante Redundancy is disabled, each of the four ports have the following options:

- Disabled
- Dante
- Control
- Dante + Control

When Dante Redundancy is enabled, each of the four ports have the following options:

- Disabled
- Dante Primary
- Dante Secondary
- Control
- Dante Pri. + Control
- Dante Sec. + Control

*Note: To prevent network conflicts, Control on both Dante Primary and Secondary ports is not allowed simultaneously.*

*Note: Port Configurations are unaffected when loading default or user settings.*

#### Factory Port Configurations:

- Dante Redundancy disabled: Port 1 & 2 = Dante + Control; Port 3 & 4 = Control
- Dante Redundancy enabled: Port 1 = Dante Primary; Port 2 = Dante Sec + Control; Port 3 & 4 = Control

## 17.3 Dante and Control IP Settings

SuperNexus supports both DHCP and static IP address setup. Dante and Control can be independently configured for DHCP or static IPs. Tap the Edit buttons in OLED 4-6 to change IP settings.

- When set to DHCP and connected to a DHCP server, A20-SuperNexus automatically has its IP address, subnet mask and gateway set by the DHCP server. Allow a minute or so for IP settings to be assigned.
- When DHCP is Off, manually edit the static IP address, subnet mask and gateway fields. Tapping each field brings up the virtual keyboard. Hit Set to apply the settings.

## 17.4 Dante Redundancy

Enable/disable the Dante Redundancy toggle switch in OLED 2 then manually restart the SuperNexus to activate/deactivate Dante Redundancy mode. The Dante Redundancy setting is unaffected when loading Setup files. When Dante Redundancy is enabled, The Network menu changes its layout to accommodate Dante Secondary IP settings as shown below.



## 17.5 Restart Network, Clear Dante Settings, Dante Status

When Dante settings (SuperNexus Name, Port Configuration, IP settings) are changed, either reboot A20-SuperNexus or tap the Restart Network button. Dante is ready to be used when the Dante status field displays 'Dante Running'. Tap 'Clear Dante Settings' to return Dante settings to factory settings.

## 17.6 RF Mirror Mode

RF Mirror Mode allows a second A20-SuperNexus unit to mirror the RF and NexLink settings of a primary A20-SuperNexus such that if the primary unit fails or loses power, the secondary ('Backup') unit continues to receive and output audio seamlessly as well as taking over NexLink control of paired Astral transmitters. It is the perfect redundant system for mission critical events where failure is not an option. The following settings are mirrored:

- TX List
- Antenna Mode
- NexLink menu switch → "Manually set Frequency, Modulation, and Privacy on Transmitters"
- RX channel settings: Bands 1-3, Frequencies, Modulation, Privacy, Gain, HPF, and Polarity
- Global RX Output Gain
- DiGiCo Console List (when Network > RF Mirror Mode > Mirror DiGiCo Console List is On).

Note that in RF Mirror mode there are two entirely separate audio feeds: one from the primary unit, and one from the secondary unit. There is no automatic switching of the audio feeds - it is incumbent on the user to switch the audio externally. *Tip: When using DiGiCo consoles, if the primary fails, the secondary unit can issue an RF Mirror macro command to the console to switch over from its Main to Alt inputs seamlessly.*

The software version, country, and number of RX channels (based on installed expansion licenses) must be identical between the Primary and Backup units before mirroring can be enabled.

To configure a A20-SuperNexus as a Backup to a Primary A20-SuperNexus:

1. Connect one of the Backup's ethernet ports to one of the Primary unit's ethernet ports.
2. Ensure both Primary and Backup units' ethernet ports are set to Control in their respective Network Menus.
3. On the Backup unit, go to the Network menu and enter the IP address of the Primary unit in the Primary IP Address box,
4. Set the Backup unit's RF Mirror Mode to On. The Status field and OLED border color indicate the state of the Backup unit as follows:

Status Message	OLED Border Color	Description
Mirroring Disabled	None	RF Mirror Mode is disabled.
Connecting to primary unit	Yellow	Establishing connection to Primary unit. This typically only appears very briefly unless the Backup is unable to connect to the Primary.
Mirroring Primary unit	Red	Backup unit is mirroring the Primary's settings successfully (TX List, Antenna Mode, NexLink Tuning Mode, Receiver channel settings, Global RX Output Gain, Console List). The Primary is still responsible for NexLink control.



Serving as Primary unit	Green	The Primary has failed (e.g. loss of power) and the Backup has taken over full NexLink control from the Primary.
Country mismatch	Yellow	Displayed when the Primary and Backup's country settings do not match. These settings must match before Mirroring can be enabled.
Software version mismatch	Yellow	Displayed when the Primary and Backup's software versions do not match. These must match before Mirroring can be enabled.
Channel count mismatch	Yellow	Displayed when the Primary and Backup's number of available RX channels are not matched. These must match before Mirroring can be enabled.

5. When the Backup unit has established connection to the Primary and is ready to activate Mirror Mode, the following message is displayed:

*"The existing TX List will be cleared and replaced with the Primary's TX List. Continue? OK, Cancel".*

- i. Select Cancel to disable Mirror Mode.
- ii. Select OK to continue activating Mirror Mode. Once Mirror Mode has been successfully activated, the OLED borders illuminate red and the Status field displays "Mirroring Primary unit".

NexLink commands and settings are grayed out on the Backup. These only become active if the Primary unit fails. The following popup is displayed if any RF-related control on the OLEDs is touched:

*"That setting cannot be modified while mirroring another unit"*

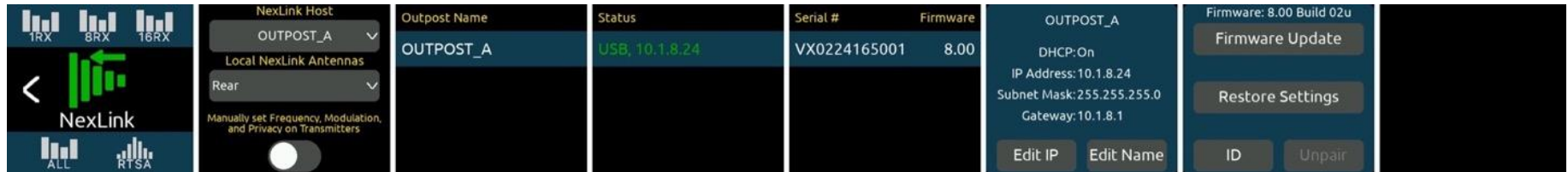
6. Should the Primary unit fail, lose network connectivity, or power down, the Backup unit seamlessly takes over NexLink control and receiver duty, the Status field displays "Serving as Primary unit", and the red border surrounding all OLEDs changes to green. When the Primary unit comes back online, it resumes control and the Backup switches back to 'Mirroring Primary unit'.

### Disabling Mirror Mode

1. Tap the Mirror Mode toggle to disable Mirror Mode.
2. If the Backup is serving as Primary unit (i.e. displaying green borders), the following popup appears: "Permanently take over NexLink control? Yes, No"
  - a. When Yes is selected, the Backup unit exits Mirror Mode and retains all settings, TX List and full NexLink control.
  - b. When No is selected, the Backup unit exits Mirror Mode, clears its TX List and disables NexLink control.

## Chapter 18: NexLink Menu

SuperNexus can wirelessly control and monitor Astral A20 transmitters via NexLink over long distances. Tap the NexLink Menu Icon in the Main Menu to access NexLink settings and the paired A20-Outpost-NL list.



### 18.1 Pairing a New A20-Outpost-NL

The A20-Outpost-NL is a remote NexLink-antenna box. See [A20-Outpost-NL](#). Before using an A20-Outpost-NL, it must be paired and configured with the A20-SuperNexus by connecting its USB-C port to the SuperNexus's rear USB-A or front USB-C port.

- Connect the A20-Outpost-NL via its USB-C port to the SuperNexus USB-A port or USB-C port. The SuperNexus automatically pairs to the A20-Outpost-NL and displays it in the list.
- The A20-Outpost-NL's default name is 'A20-Outpost-MMMMMM' where MMMMMM are the last 6 digits of the MAC address. Its name can be changed by tapping the Edit Name button which is only ungrayed when connected via its USB-C port to either SuperNexus USB port.
- By default, the A20-Outpost-NL's DHCP is enabled. When enabled, the A20-Outpost-NL is automatically assigned an IP address by a connected DHCP server.
- The IP settings can be configured by tapping the Edit IP button which is only ungrayed when connected via the Outpost's USB-C to SuperNexus USB-A or C port.

An Outpost-NL's IP address, name and restore can only be configured when connected via its USB-C port to either SuperNexus USB port.

Once an Outpost-NL has been paired and configured, it can be selected as the NexLink Host from the SuperNexus's NexLink Host drop down list in OLED 2.

### 18.2 NexLink Host

The selected NexLink Host manages the communication between the A20-SuperNexus and paired A20 transmitters. There can only be one NexLink Host. The host can be the SuperNexus itself ('Local') or any one of the listed A20-Outpost-NLs which can be used to remotely locate the NexLink antennas closer to the action. Connect an A20-Outpost-NL using Cat 6 or optical fiber to the SuperNexus.

## 18.3 Local NexLink Antennas

Determines whether the front or rear pair of antennas are used for NexLink communication when the NexLink Host is set to 'Local'.

Note that the SuperNexus's local 2.4 GHz antennas are always used when pairing the SuperNexus to A20-Remote via BLE regardless of the NexLink Host setting.

## 18.4 Manually Set Frequency, Modulation, and Privacy on Transmitters

Determines whether A20 transmitter frequency, modulation, and privacy settings are automatically or manually sent from the SuperNexus to the A20 transmitter over NexLink. When the toggle switch is disabled, these settings are automatically sent from SuperNexus to the transmitters. When the toggle switch is enabled, it is necessary to manually set frequency, modulation, and privacy on both the SuperNexus and transmitters.

*Note: If frequency, modulation, and privacy settings do not match between the SuperNexus and transmitters, audio is not received.*

## 18.5 A20-Outpost-NL List

Lists paired A20-Outpost-NLs in alphanumeric order on OLEDs 3-8. The list displays the A20-Outpost-NL's Name, Connection Status, Serial Number and Firmware version. A maximum of four Outposts can be added to the list.

- A20-Outpost-NL Name: The user-editable name of the A20-Outpost-NL.
- Status: Displays the Outpost-NL's USB connection status, network connection status, and IP address.
  - IP address text = Green: Outpost is active as the NexLink Host
  - IP address text = White: Outpost is connected via ethernet but not active as the NexLink Host.
  - IP address text = Gray: Outpost is paired but not connected via ethernet.
  - When Outpost's USB-C is connected to SuperNexus, 'USB' is displayed before the IP address.
- Serial #: The A20-Outpost-NL's serial number.
- Firmware: The A20-Outpost-NL's current firmware version.

### Editing Name and IP settings for an Existing A20-Outpost-NL

Select an A20-Outpost-NL in the Outpost list. This displays the current Name and IP address, Subnet Mask, and Gateway for the selected A20-Outpost-NL in OLED 6. By default, DHCP is enabled. To edit the selected A20-Outpost-NL's IP settings and name, ensure the Outpost is connected via USB-C to either SuperNexus USB port then tap Edit IP and Edit Name respectively.

### Identifying an Output-NL

Use the ID button in OLED 7 to identify an Outpost-NL when multiple Outpost-NLs are paired, powered and connected to the SuperNexus. Tapping the ID button will flash the selected Outpost-NL's rear panel power LED, blue.

**Unpairing an A20-Outpost-NL**

Tap Unpair in OLED 7 to remove the selected A20-Outpost-NL from the list and SuperNexus's cache of known, configured A20-Outpost-NLs. Unpair is granted out when USB is connected.

**Restore Settings**

Tap the button to return the selected A20-Outpost-NL's name and IP address to factory defaults. Default IP Address, Subnet Mask, and Gateway are all set to 0.0.0.0. Default Name is 'A20-Outpost-MMMMMM' (where MMMMMM= the last 6-digits of the Outpost's MAC address). The A20-Outpost-NL must be connected to SuperNexus via USB-C for the Restore Settings button to be available.

## 18.6 Updating A20-Outpost-NL Firmware

Ensure A20-Outpost NL firmware is up to date and compatible with the installed SuperNexus firmware. If it needs updating, NexLink Menu > OLED 6 flashes an update message in red.

*Note: Set the NexLink Host setting to Local before updating Outpost firmware.*

**Via USB Thumb Drive**

- Download the latest .prg update file from the Sound Devices website.
- Copy the .prg file to the root of a SuperNexus formatted USB thumb drive.
- Power the Outpost-NL via >15 W PoE or USB-C source.
- Insert the thumb drive into the A20-Outpost-NL's USB-A port. The A20-Outpost-NL automatically detects the .prg file and starts updating. During the update process, the A20-Outpost-NL's rear panel power LED flashes alternating red, green, and blue. Once the update has been completed successfully, the rear panel power LED changes to solid blue and the .prg file is automatically erased from the thumbdrive. If the update fails, the power LED flashes red.

**Via Ethernet from SuperNexus**

- Download the latest .prg update file from the Sound Devices website.
- Copy the .prg file to the root of a SuperNexus formatted USB thumb drive
- Insert the thumb drive into the SuperNexus USB-C or USB-A port.
- Ensure Outpost-NL is connected via Ethernet to the SuperNexus and powered on.
- Go to the SuperNexus's front panel NexLink menu, select the Outpost-NL from the Outpost-NL list, then select Firmware Update in OLED 7
- The SuperNexus sends the firmware to the Outpost-NL over Ethernet. During the update process, the Status column displays the firmware update progress, and the A20-Outpost-NL's rear panel power LED alternately flashes red, green and blue. Once the update has been completed successfully, the rear panel power LED changes to solid green and the .prg file is automatically erased from the thumbdrive. If the update fails, the power LED flashes red.

## 18.7 NexLink Status Alerts



The NexLink Status View allows you to monitor NexLink communication between the A20-SuperNexus and Astral transmitters. This can assist in resolving NexLink issues. Access the NexLink Status View from the 1RX View Gear menu, TX View menu, or, if the channel is sourced from multiple transmitters, from the 1RX View's Gear menu.

A receiver channel's Gear icon, NexLink Status button, and RF Frequency display turn red when there is a NexLink error.

### NexLink Status Alerts

Message	Text Color	Description
Searching for transmitter	Yellow	An Astral transmitter has been linked to the A20-SuperNexus but NexLink communication to the transmitter has not yet been established or has been lost. The transmitter may be out of range, or its battery drained.
Transmitter powered off	White	An Astral transmitter is NexLinked to A20-SuperNexus and is powered off.
NexLink connected	Green	An Astral transmitter has been successfully NexLinked to A20-SuperNexus
UHF frequency synchronized	Green	The frequency of the transmitter matches that of the receive channel that it is assigned to.
Modulation synchronized	Green	The modulation of the transmitter matches that of the receive channel that it is assigned to.
Frequency mismatch Set the transmitter frequency.	Red	The frequency of an assigned transmitter does not match that of the receive channel. Manually set the transmitter frequency to the same frequency as the receiver channel or set the A20-SuperNexus's NexLink Tuning Mode to 'Push'.
Modulation mismatch Set the transmitter modulation.	Red	The modulation setting of an assigned transmitter does not match that of the receive channel. Manually set the transmitter's modulation to the same modulation as the receiver channel or set the A20-SuperNexus's NexLink Tuning Mode to 'Push'.
Privacy key mismatch Set the transmitter privacy key.	Red	The privacy key setting of an assigned transmitter does not match that of the receive channel. Manually set the transmitter's privacy key to the same modulation as the receiver channel or set the A20-SuperNexus's NexLink Tuning Mode to 'Push'.
Country conflict Change the transmitter country.	Red	The country code of the transmitter does match that of the Nexus. No synchronization of settings will be done until these match. Either change the country from A20-Remote or from the A20-SuperNexus.
No receive frequency Set the receive frequency.	White	The frequency of the receive channel is set to 'Off'. In the 1RX or 4RX View frequency popup, set the channel to a valid frequency and ensure the channel is 'On'.

## Chapter 19: System Menu

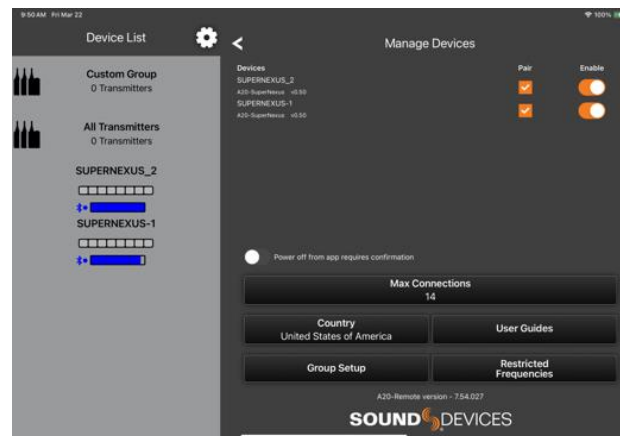
Tap the System Icon in the Main menu to access System settings.



### 19.1 Pair to A20-Remote App

The A20-SuperNexus can quickly change the country setting of all its paired transmitters automatically to make changing locations very easy. To accomplish this, the A20-SuperNexus uses an iPhone/Android app along with a smartphone's GPS to verify the current location. *The SuperNexus MUST be paired with the A20-Remote iOS /Android app to set Country and activate Frequency Authorizations on SuperNexus and its paired transmitters.*

- Download the A20-Remote iOS or Android app from their respective App stores
- Open the app and select the Manage Devices view
- From the A20-SuperNexus > System menu, tap 'Pair to A20-Remote App'
- The A20-SuperNexus, along with its name and firmware version automatically appear in the A20-Remote's Manage Devices List



Once paired, use A20-Remote to sync the mobile device's country and date/time to the A20-SuperNexus.

## 19.2 Country

The Country setting determines which Band Filters, RF frequencies, and transmit powers are legally available for selection in a Country.

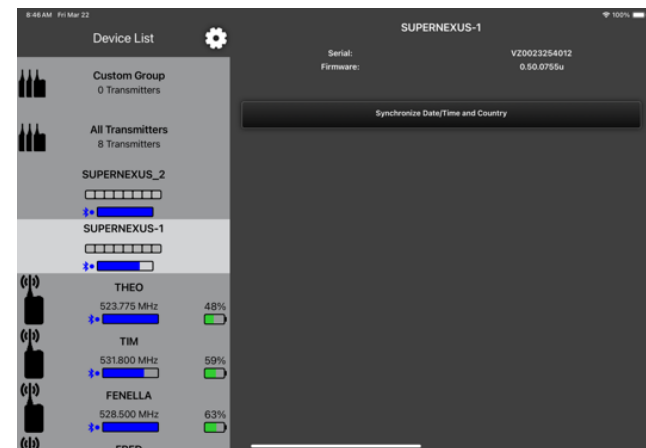
- SuperNexus and Astral transmitters must be set to the same Country.
- When the Country setting is changed, A20-SuperNexus must restart for the changes to take effect.
- Changing the Country setting sets the current bands to the default filter range for that Country.
- If the A20-SuperNexus and an Astral transmitter's country settings are not matched, a warning popup appears in OLED 1 as follows:

*"Cannot use 1 or more TX as they are set to a different country than the SuperNexus. Change country on the SuperNexus or the TX from the A20-Remote App."* [Country, OK]

## 19.3 Syncing A20-Remote's Country, Date, and Time settings to A20-SuperNexus.

- Select the A20-SuperNexus in the A20-Remote app's Device List (left pane).
- In the A20-SuperNexus's Details View (right pane), tap the "Synchronize Date/Time and Country" button.
- When successfully synchronized from A20-Remote, the A20-SuperNexus's Country button displays the updated Country setting in green font and its Date/Time button displays the updated date and time. The A20-Remote app displays "Country Changed. Changing the country will not take effect until the A20-SuperNexus is restarted."
- Restart the A20-SuperNexus for the Country setting to take effect.

Once the A20-SuperNexus is synced and restarted, it relays its Country and Date/Time information automatically to all NexLinked transmitters.



If the A20-Remote app is not available to sync Country to A20-SuperNexus, tap the A20-SuperNexus's Country button to manually set the Country. In this case, the Country setting is not automatically pushed to the transmitters. The following message is displayed: "A manually selected country will not be automatically pushed to transmitters. Choose one anyway? Yes, No"

Tap 'Yes' to select a country from the list. "Changing the country will restart the unit. Continue?" is displayed. Tap OK to restart.



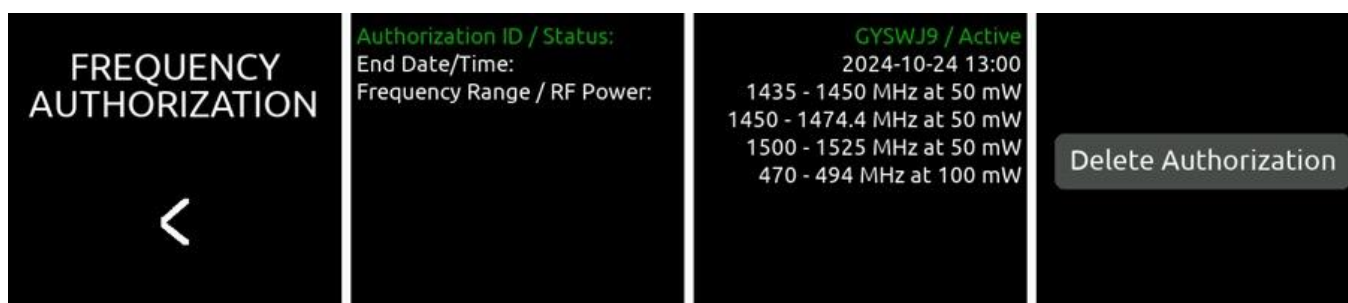
## 19.4 Frequency Authorization

Displays information pertaining to frequency authorizations. The button is grayed out if no valid Frequency Authorizations are loaded. See [Restricted Frequency Authorization](#) for further details.

- **Authorization ID/Status:** A Frequency Authorization can be “active” or “inactive”. In either case, the presence of the frequency authorization unlocks in the SuperNexus and paired transmitters the ability to tune to the frequencies and desired RF power levels listed. Only an “active” Frequency Authorization allows a transmitter to actually transmit RF on frequencies or at power levels not allowed in the transmitter’s current country. A Frequency Authorization must be “activated” by the [paired A20-Remote app](#) which determines whether the mobile device is within the effective time period, country and geolocation. If so, A20-Remote then activates the Frequency Authorization in the SuperNexus and its paired transmitters.
- 

### To activate a frequency authorization:

- In A20-Remote > Manage Devices > Frequency Authorizations, enter your approved Authorization ID (contact RF\_Request@SoundDevices.com to obtain the necessary authorization).
- Tap the Submit button.
- Select a paired Astral receiver in the A20-Remote’s Device List and tap ‘Send Frequency Authorization’. ‘Successfully sent Frequency Authorization’ is displayed.
- Tap the Astral Receiver’s System > Frequency Authorization button to access the Frequency Authorization view. ‘Pending Restart’ is displayed in yellow if the authorization was received successfully. Restart the receiver.
- Go to the Frequency Authorization view again to confirm that the authorization is loaded and displaying ‘active’ in green font.
- Activate the authorizations in paired transmitters by restarting them.
- **End Date/Time:** The Date/Time where the authorization becomes inactive.
- **Frequency Range / RF Power:** Up to 8 frequency ranges and their associated max RF power levels that are authorized to be used when a Frequency Authorization is active.



- Tap Delete Authorization to remove the frequency authorization. It will be removed from the SuperNexus and paired transmitters upon next bootup of each device.

## 19.5 Other System Settings

### Date/Time

The A20-SuperNexus's Date/Time has two purposes:

1. Sends the date/time to Astral transmitters where the value is used to set the creation time of the Astral transmitter recorded files.
2. Sets the creation date/time of A20-SuperNexus Quick Setup files.

Tap Date/Time to bring up the Date/Time popup, then enter MM/DD/YY and HH/MM/SS. In each field, rotate the Control knob to set a value, then press the Control to jump to the next field. Tap Done to store.



### Time Zone

Set the time zone from GMT -12:00 to GMT +13:00

### Fan Speed

Select Automatic to have the fan speed automatically controlled as temperature changes. Set to Maximum to force fan speed to the highest speed.

### Brightness

Tap to adjust the brightness of the OLED array and the LEDs.

### Screensaver

The screensaver can help prevent OLED burn in. The screensaver time sets the duration from when the OLEDs were last touched to when the OLEDs display the screensaver. Select between 1 min, 5 mins, 15 mins, 30 mins, and never. The screensaver is canceled upon the touch of any front panel control.

### Lockout Mode

Enable Lockout Mode to prevent unauthorized or accidental access to front panel controls including OLEDs, HP knob, Control knob, and triangle button. Lockout mode can be enabled locally or via the web app. When Lockout mode is enabled, the HP knob ring LED is backlit green to indicate that the A20-SuperNexus is still on. To enable Lockout mode from the Nexus, tap the Lockout Mode button. The following popup is displayed:

*“Are you sure?  
To disable Lockout, tap the  
left display whilst pressing HP.  
OK, Cancel”*

To disable Lockup Mode, tap the left display whilst pressing the HP knob.

*Tip: You can also use Show Mode to prevent accidental changes to the front panel screens - this disables touch making the screens read-only. Press and hold the Control knob for 3 seconds to toggle Show Mode on/off. When on, an orange border is displayed around each screen and if a screen is touched, a ‘The screen is locked’ popup appears.*

### Turn On When Power is Applied

When the toggle is On, the A20-SuperNexus automatically powers on when AC power is applied.

### PoE+ Output

When the toggle is On, Ethernet Port 1 supplies PoE+ power. Maximum power output is 30W.

### Show All TX Group

Shows or hides the All TX Group at the top of the TX List.

### Web Password

Tap Set to set a security password for accessing the Web App. Tap Clear to clear the current password.

### Macros

Tap to configure Astral transmitter and SuperNexus commands to trigger DiGiCo console macros via an AstralComm control network. ‘AstralComm’ is a proprietary protocol specifically designed to trigger DiGiCo console macros from Sound Devices Astral devices. See [Macros](#) for detailed setup information.

### Notifications

The Notifications popup menu provides options for enabling or disabling various notification popups from being displayed including:

1. Power Off Confirmation: When set to ON, powering off a transmitter from a 1RX View displays “Are you sure?”. Tap OK to power off the transmitter. Use this function to prevent accidentally powering down transmitters.
2. Stop Confirmation: When set to ON, stopping a transmitter from recording from a 1RX View displays “Are you sure?”. Tap OK to stop the transmitter recording. Use this function to prevent accidentally stopping recording.
3. Mute Confirmation: When set to ON, muting a transmitter from a 1RX View displays “Are you sure?”. Tap OK to mute the transmitter. Use this function to prevent accidentally muting transmitters.
4. RF Off Confirmation: When set to ON, setting RF to off on a transmitter from a 1RX View displays “Are you sure?”. Tap OK to disable RF on the transmitter. Use this function to prevent accidentally disabling RF on transmitters.

5. Audio Off Warnings: When the toggle is off, the A20-SuperNexus does not show a warning popup that audio will stop when switching Bands and when switching to Scan mode.
6. Tx Battery Warnings: When the toggle is On, the SuperNexus flashes all its OLED's borders red and displays a warning popup to indicate one of the paired transmitters is low on battery. Choose to ignore the warning or tap OK, in which case the warning will reappear.



### Format USB Drive

A USB drive connected to the USB-A or USB-C port can be used for updating firmware and saving quick setup files. Before using the USB drive, it must be formatted by the A20-SuperNexus.

- Tap Format USB drive, then select OK in the popup.
- USB Drives are formatted as FAT32.

### Plugins

Tap Plugins to display and install licenses and plugins.

### Firmware Update

See [Updating Firmware](#)

Legal/Patent

Displays legal and patent information for the A20-SuperNexus across OLED screens 1-6

### System Info

Displays model name, firmware version, and serial number

## 19.6 Macros - AstralComm

'AstralComm' is a proprietary protocol specifically designed to trigger DiGiCo console macros from Sound Devices Astral devices. Astral transmitters, A20-HH, A20-TX and the A20-SuperNexus receiver can send macro commands over a network to one or more registered DiGiCo consoles to trigger their local macros.

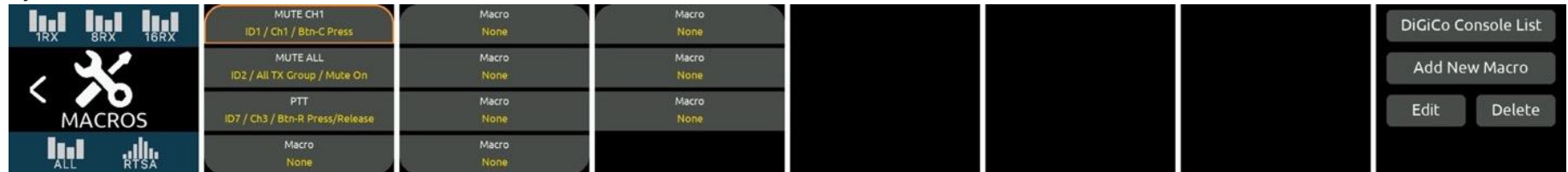
**Note:** Only DiGiCo SD or Quantum consoles running v20xx or later are supported.

Commands can be triggered from the following:

- A20-TX with the optional A20-TX Switch fitted.
- A20-HH with the optional Control 1, 3, Switch rings, with one or three buttons or the switch fitted.
- A20-SuperNexus changing the transmitter status of: Power, Mic Mute, RF Mute, Record  
For example, Control Ring buttons on multiple A20-HH transmitters could trigger different macros on one or more consoles to mute specific channels. Or perhaps a SuperNexus's 'All TX Power On' group command could trigger a macro that unmutes all channels on a particular console.
- RF Mirror: This trigger allows you to automatically send a macro command from a secondary SuperNexus to a DiGiCo console if the primary SuperNexus fails. For example, this could be used to trigger a DiGiCo console macro to switch from its 'Main' audio inputs to 'Alt' audio inputs so that show audio is not interrupted.

### 19.6.1 Establishing AstralComm Communication

System > Macros Menu



To establish communication between SuperNexus and a DiGiCo console, the following conditions must be met:

- Both must be connected via the same control network. See [Network](#) menu.
- The DiGiCo console's IP address must be added to the SuperNexus's System > Macros > DiGiCo Console List in OLED 8.
- SuperNexus must be added to the DiGiCo console's Setup > External Control > External Devices list. Please refer to the console's [Software Reference Manual](#) for further information.
- A DiGiCo console will only act upon a received macro command and activate a macro if:
  - It receives a SuperNexus command whose Command ID matches the console macro's designated Command ID.
  - The command is received from a SuperNexus whose IP address matches the console macro's Device ID that has been assigned to that SuperNexus's IP address.

## 19.6.2 DiGiCo Console List



Access the DiGiCo Console List (Macros > OLED 8) to add consoles to which macro commands will be sent. The SuperNexus broadcasts macro commands to all consoles in the list.

Up to 10 consoles can be added. Tap Delete to remove consoles from the list.

*Note: An AstralComm network can consist of up to ten SuperNexus receivers (standalone or in RF Mirror Mode) and ten DiGiCo SD or Quantum consoles.*

*Note: When working with DiGiCo consoles with dual engines, add the IP address for each engine to the console list. Only the “active” engine will listen to the received AstralComm commands.*

## 19.6.3 Creating a Macro Command



Up to 256 console macros can be triggered from SuperNexus and paired Astral transmitter commands. Each user-nameable command is defined by its Source, Condition, and Command ID.

Tap **Add New Macro** or **Edit** to edit an existing Macro command.

**Name**

Enter a descriptive name for the command. The default name is 'Macro'. Up to 20 alphanumeric characters are permitted.

**Source**

Selects which receiver channel or TX Group is the source for the macro command. Options include:

RX Channel Number (1-n, where 'n' is the number of available RX channels installed).

TX Group Number (1-8)

All TX Group

RF Mirror

**Condition**

To send a command from the selected source, choose the paired transmitter button action, transmitter control switch position, transmitter state, or SuperNexus action that should trigger it.

**A. Transmitter Button Actions (Applies to the A20-HH Control Ring buttons)**

[Button-L, Button-C, or Button-R] Release

[Button-L, Button-C, or Button-R] Press/Release

**B. Transmitter Control Switch Position (Applies to the A20-HH Control Ring Switch and A20-TX Switch)**

[Control Switch] On/Off

[Control Switch] On

[Control Switch] Off

**C. Transmitter State (Sends the command when the SuperNexus receives confirmation that the transmitter state is true)**

[TX Power, TX Mute, TX Record, or TX RF] is On

[TX Power, TX Mute, TX Record, or TX RF] is Off

**D. SuperNexus Action (Sends the command immediately when the SuperNexus initiates the action from its interface or the web app. It does not wait to receive confirmation from the transmitter)**

Initiate [TX Power, TX Mute, TX Record, or TX RF] On

Initiate [TX Power, TX Mute, TX Record, or TX RF] Off

[TX Group 1-8 Power, TX Group 1-8 Mute, TX Group 1-8 Record, or TX Group 1-8 RF] On

[TX Group 1-8 Power, TX Group 1-8 Mute, TX Group 1-8 Record, or TX Group 1-8 RF] Off

[All TX Group Power, TX Group 1-8 Mute, TX Group 1-8 Record, or TX Group 1-8 RF] On

[All TX Group Power, TX Group 1-8 Mute, TX Group 1-8 Record, or TX Group 1-8 RF] Off



**Command ID**

Range: None, 1 to 256. The Command ID must correspond with the DiGiCo console Macro's Command ID otherwise the console macro will not be activated.

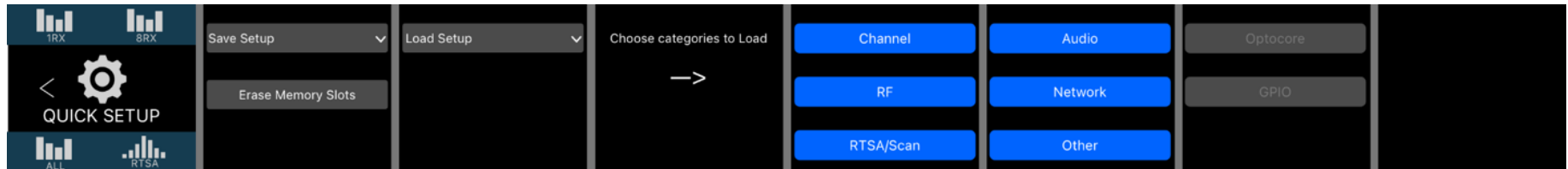
**19.6.4 Macros and RF Mirror Mode**

Macro commands created on a Primary SuperNexus are mirrored to a Secondary SuperNexus when RF Mirror Mode is activated. Based on whether the DiGiCo Console List is set to be mirrored or not, the system can be configured so that both units send macro commands or only the active unit sends macro commands. Select Network > RF Mirror Mode, then turn on or off the 'Mirror DiGiCo Console List' setting as follows:

- On = Only the active unit (Primary or Secondary) sends the macro commands. This is typically used in single console applications.
- Off = Both Primary AND Secondary units send the macro commands. This is typically used in scenarios where Primary and Secondary SuperNexus are each feeding their own consoles.

## Chapter 20: Quick Setup Menu

Quick Setup provides a way to save and load A20-SuperNexus settings. Settings are saved to internal memory slots 1-4 or to a USB thumb drive connected to the USB-A port.



### Save Setup

- All A20-SuperNexus's current settings are saved when saving a setup.
- Saving to an internal memory slot overwrites its existing setup file.
- Tap Erase Memory Slots to erase internal memory slots 1-4.
- Tap Save Setup to display a list of destinations (4 internal memory slots and USB thumb drive). Select a destination. Use the virtual keyboard to name the setup. Tap Save to store the current A20-SuperNexus settings to the selected destination.
- During the save process, "Saving Setup ..." is displayed.

### Load Setup

- Choose which categories (Channel, RF, RTSA/Scan, Audio, Network, Other) to load. This allows you to select only the settings you want to change and which ones you want to remain.
- Tap Load Setup to bring up a list of the setup files stored in the four internal memory slots and USB drive. Selecting a setup from the list loads the selected categories from that setup. During the load setup process, "Loading Setup ..." is displayed.

### Categories

Category	Setting
Channel	RF Frequency
	Modulation
	Privacy key
	RX On/Off
	Transmitters assigned to channel

	Polarity
	Gain
	HPF
RF	Antenna Mode
	A and B Antenna Bias Power for all antenna pairs 1, 2, and 3
	A and B Antenna Cascade out for all antenna pairs 1, 2, and 3
	Filter Range settings for Band 1, Band 2, Band 3
	RF History duration
	RF History Type
	NexLink Tuning Mode (Push to Transmitter or manual)
	Local NexLink Antennas - Front or Rear
RTSA/Scan	RTSA/Scan Zoom Mode
	RTSA/Scan Vertical dBm Scale
	RTSA/Scan Antenna Display Selection
	RTSA/Scan Antenna Display Characteristics
	Scan Width
Audio	All Audio Output Routings and Analog Output Levels
	Headphone Out Routing
	Headphone Out Gain
	Global Audio Gain Offset
	Sync Reference
	Sample Rate
	96K MADI Format
	All A20-Opto settings. Only available when A20-Opto is connected.
Network	RF Mirror Mode

	Control: DHCP On/Off
	Dante: DHCP On/Off
	Control: Static IP address, subnet mask, gateway
	Dante: Static IP address, subnet mask, gateway. (In Redundancy Mode, IP address data is stored for both Primary and Secondary)
	Web Show Mode
Other	Brightness
	Screensaver
	Turn On when Power is Applied
	Time Zone
	Notification settings
A20-Opto Optocore Settings	All Optocore settings: ID, Outputs, Speed
A20-Opto GPIO Settings	All A20-Opto GPIO settings

### Default Settings

The Load Setup list also includes a 'Default Settings' option for restoring the A20-SuperNexus to default settings.

## Chapter 21: Web App

Remote control the A20-SuperNexus from anywhere in the world using the A20-SuperNexus Web App, a browser-based remote-control application for the A20-SuperNexus that can be run on any computer, tablet, or smartphone. It duplicates virtually all the functions available from the A20-SuperNexus front panel. The integrated RTSA view is particularly useful for performing real time spectrum analysis over a wired or wireless network. Export the RTSA data as .csv and .png files to keep a record of a location's RF environment.

- The app's GUI is dynamically optimized for the screen size on which it's being viewed, whether a computer, tablet or smartphone screen.
- To ensure the web app functions correctly, use the latest version of Chrome, Safari, or Edge.
- Only one web client is supported. For correct operation, do not have multiple browsers or tabs open with the same A20-SuperNexus IP address.
- When using a Wi-Fi access point with the A20-SuperNexus, it is best practice to switch the Wi-Fi access point to 5 GHz so that the Wi-Fi doesn't interfere with the 2.4 GHz NexLink.

### 21.1 Accessing the SuperNexus Web App

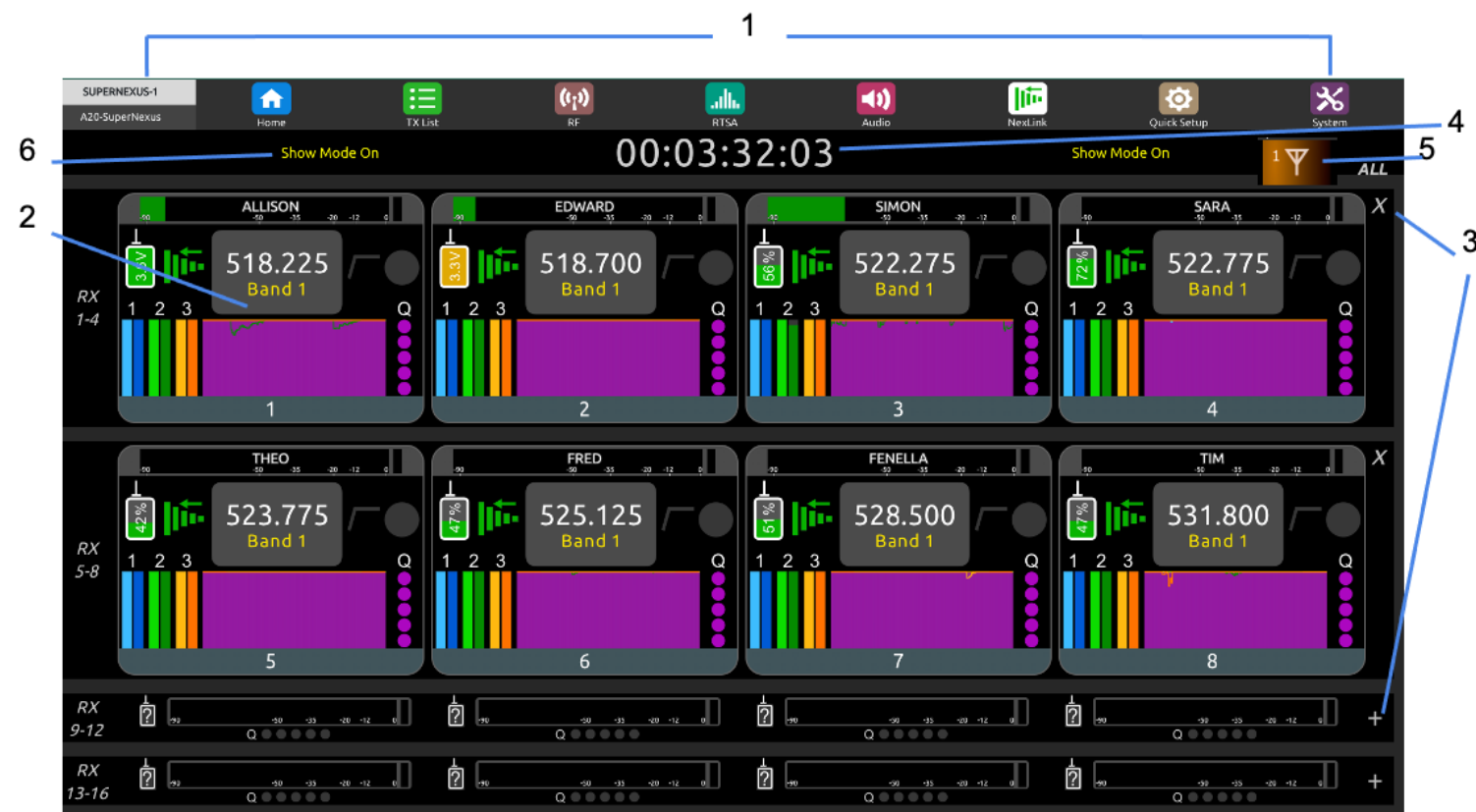
1. The web-enabled device being used must be on the same network as A20-SuperNexus to access the web app. A VPN is required if A20-SuperNexus is outside of the local network.
2. See [Network](#) for information on how to configure and connect the A20-SuperNexus to a network.
3. Go to the Network menu.
4. Make a note of the IP address shown in the Control IP Settings screen.
5. Enter that IP address into a web-enabled device's web browser.

*Tips: When running multiple A20-SuperNexus receivers, open each one in its own separate browser tab. It is also recommended to clear the Web App's browser cache after a firmware update.*

*With Chrome, it is recommended to set font size to medium in the Chrome Appearance Settings for correct appearance.*

*Note: All web app screenshots are captured using an Apple MacBook Pro 15" computer.*

## 21.2 Web Overview



1. **SuperNexus Name and Menu Tab Bar:** Displays SuperNexus name and provides access to the various menus. Click a menu tab to display its menu.
2. **RX Channel:** Displays important parameters for each RX channel. Click to access a detailed view of the RX channel.
3. **Expand / Collapse / ALL Icons:** A row of 4 channels can be expanded or collapsed; Click '+' to expand and 'X' to collapse. Click 'ALL' to expand or collapse ALL channels.
4. **Timecode / Command Status Display:** Normally displays SuperNexus timecode or status of commands sent to the SuperNexus.
5. **Antenna Limiter / Overload Indicators:** Indicate whether the A20-SuperNexus's A and B antenna inputs are approaching overload or overloading. 'A' antenna indicator is shown screen left and 'B' antenna indicators are shown screen right. Red = Overload. Orange = Approaching overload.
6. **Show Mode / RF Mirror Mode Status:** Indicates whether Show Mode or RF Mirror Mode are active. In these modes, the Web App is read-only.

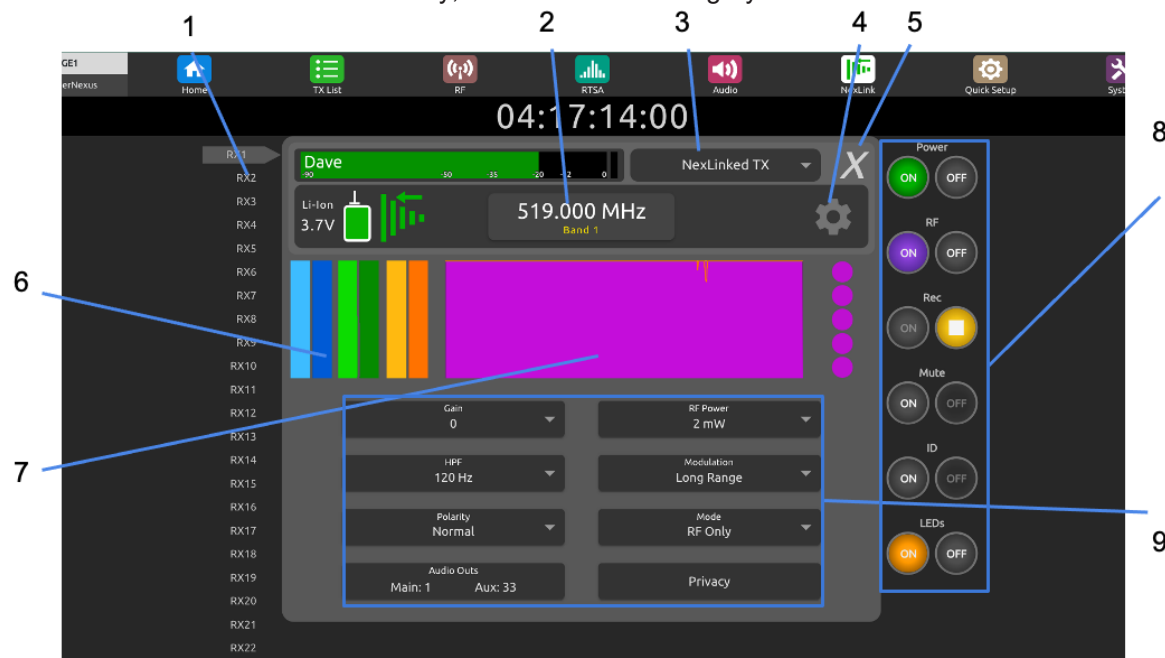
## 21.3 Menu Tabs

### 21.3.1 Home

Displays an overview of all receiver channels. See above. Tap an RX Channel to view its detailed view, aka 1RX View

#### 21.3.1.1 1RX View

- Duplicates the functionality of the A20-SuperNexus's front panel 1RX View. See [1RX View](#).
- When Mode is set to RF Only, the Rec buttons are grayed out.



1. **Receiver Channel:** Tap or click to jump straight to another receiver channel's 1RX View.
2. **Frequency:** Tap to display the Select Frequency popup from which the receiver channel's frequency can be set. To power down a receiver channel, set RX On/Off toggle to Off.
3. **NexLinked TX / TX List:** Displays a list of Astral transmitters that have been paired to Nexus.
4. **Gear Menu:** Duplicates the Gear menu in the Nexus's 1RX View. See [1RX View](#)
5. **Exit:** Tap or click to exit back to the Main View.
6. **RSSI Meters:** Displays the RSSI A and B meters for antenna pairs 1 (light blue, blue), 2 (light green, green), and 3 (light orange, orange).



7. **RF History:** Displays the RF History data. See [RF History](#).
8. **Transmitter Control Buttons:** NexLink transmitter control buttons
9. **Receiver and Transmitter Settings:** RF Power only applies to the transmitter. Modulation, Mode, and Privacy apply to both transmitter and receiver. Gain, HPF, Polarity, and Audio Outs only apply to the receiver channel. All transmitter settings are sent over NexLink.

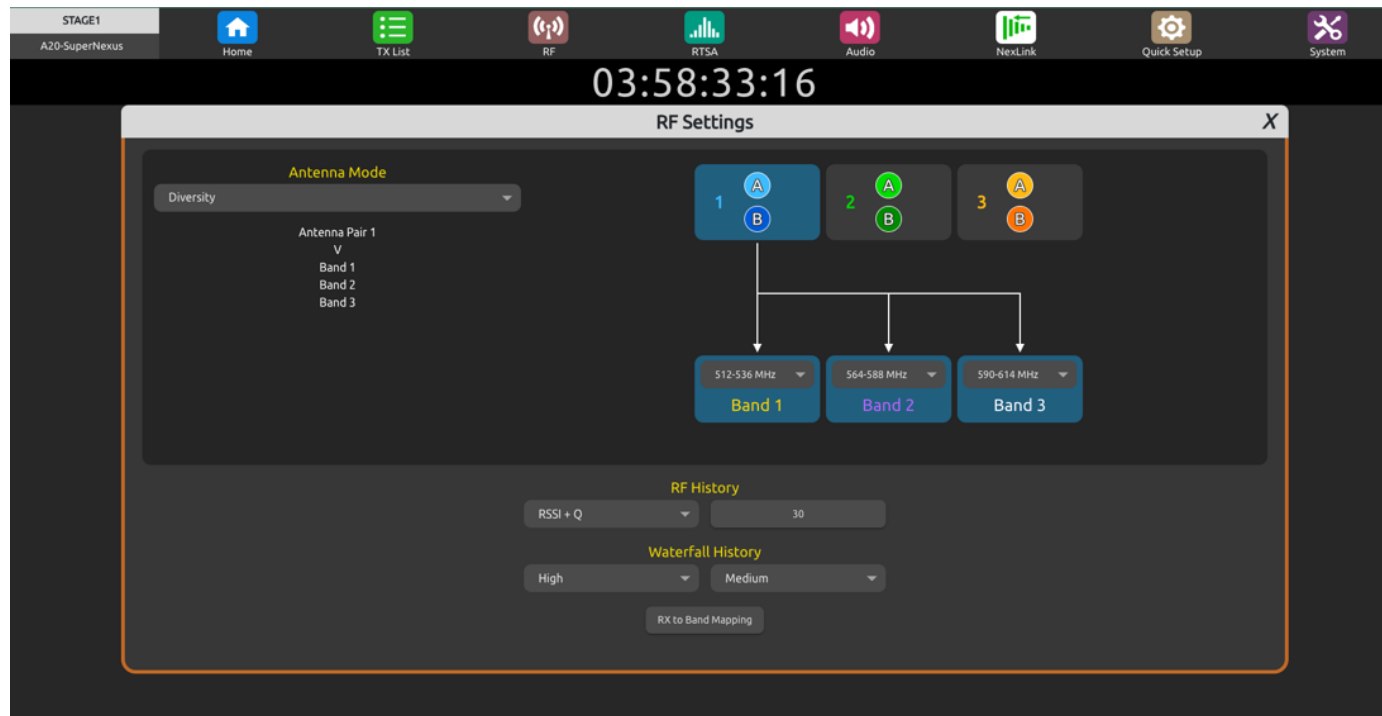
### 21.3.2 TX List

Displays a list of all paired Astral transmitters, TX battery level, which RX channel they are assigned to, their NexLink status, and TX Group assignment. Each row includes quick access to transmitter Power On/Off control. Up to 64 transmitters can be paired with the A20-SuperNexus. Select a transmitter in the left pane to access its settings in the right pane. If at least 1 transmitter is assigned to a TX Group 1-8, that group is displayed as a row above the list of transmitters. Select that group's row to access its group controls in the right pane.



### 21.3.3 RF

Sets Antenna Mode, Bands 1-3, Antenna Pairs 1-3, RF and Waterfall History parameters. See [RF Menu](#)

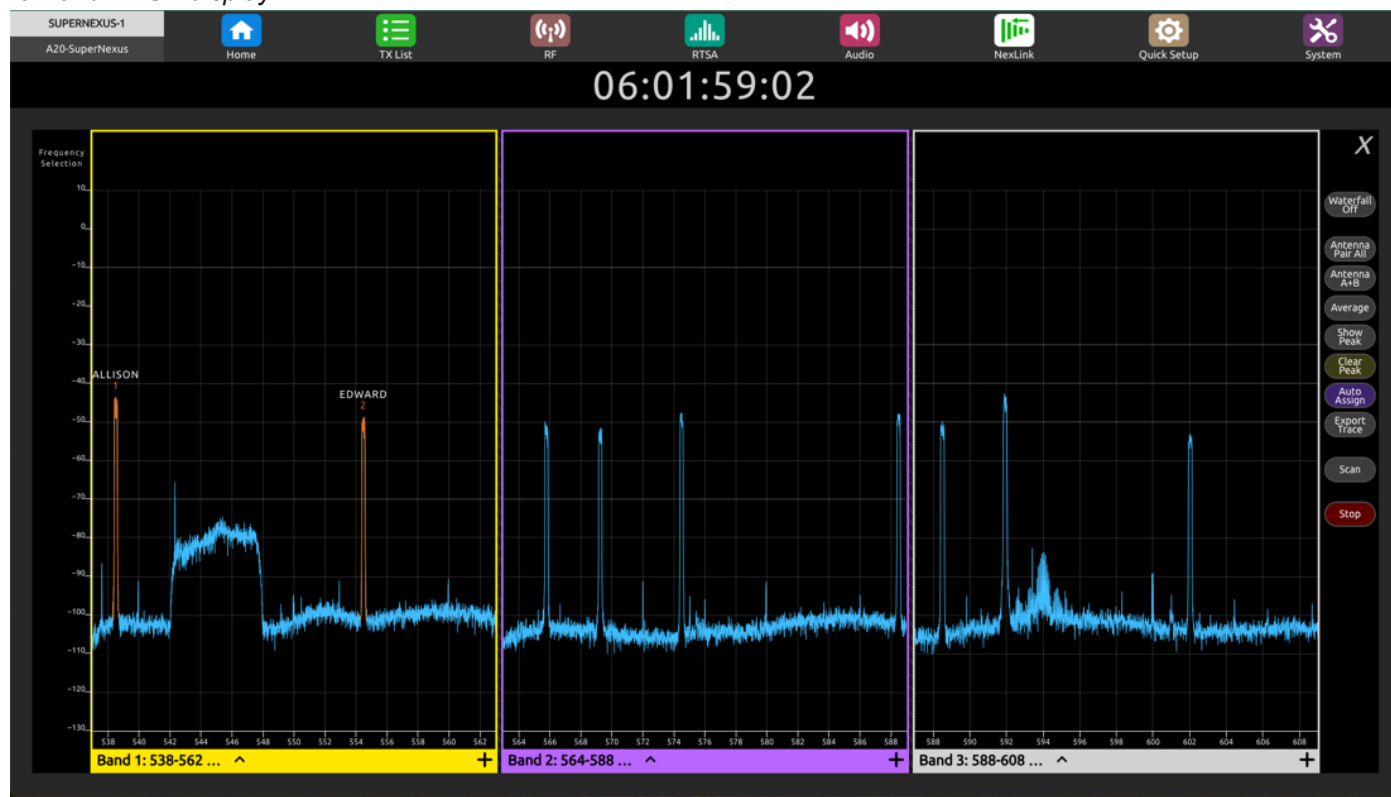


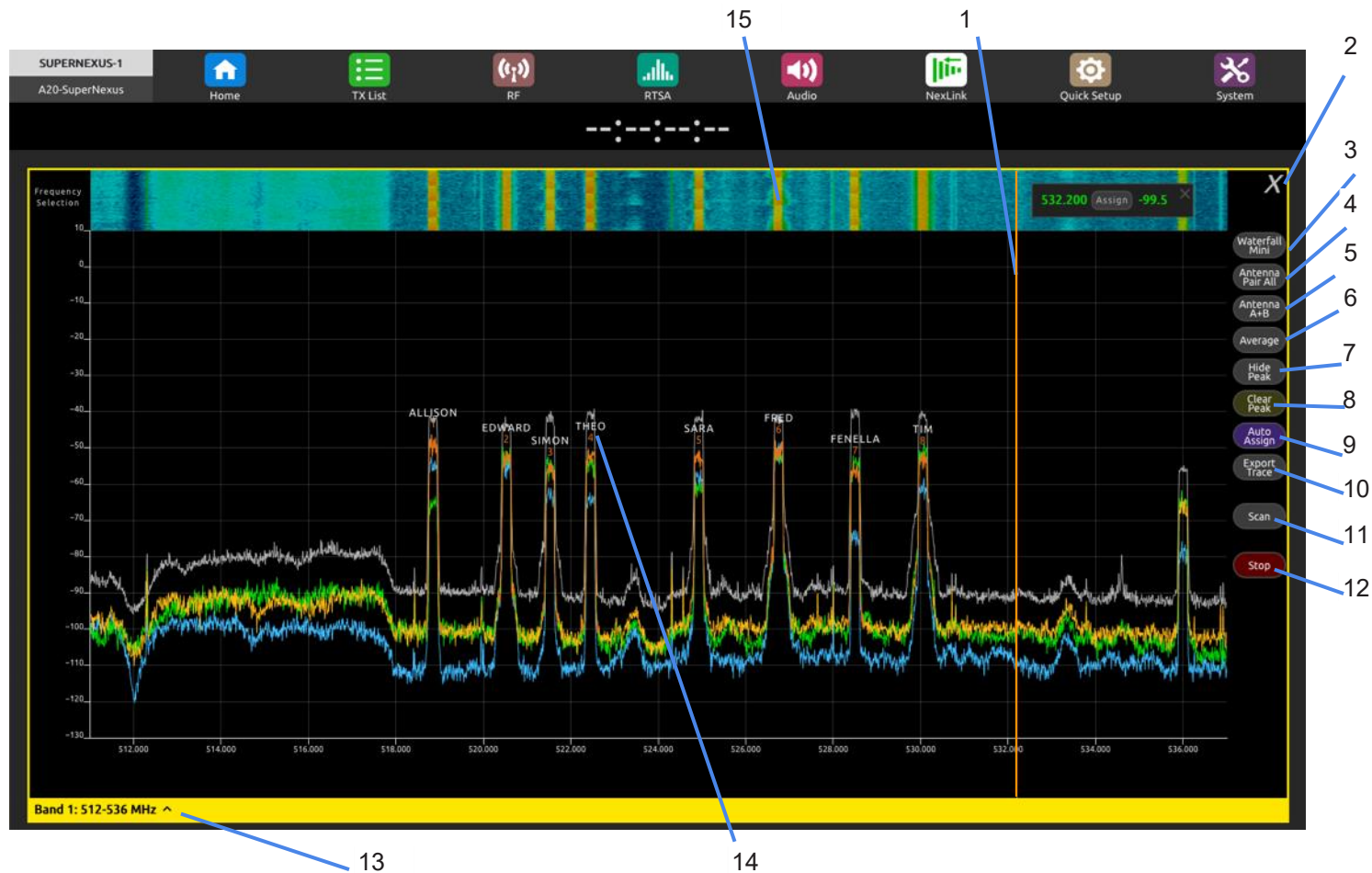
### 21.3.4 RTSA

For the most part, the Web App's RTSA duplicates the functionality of the A20-SuperNexus's front panel RTSA. See [RTSA](#).

The [Antenna Mode](#) determines the number of bands displayed. Expand an individual band's RTSA by clicking its '+' icon. Drag the dividers between each band to resize bands.

#### 3-Band RTSA display



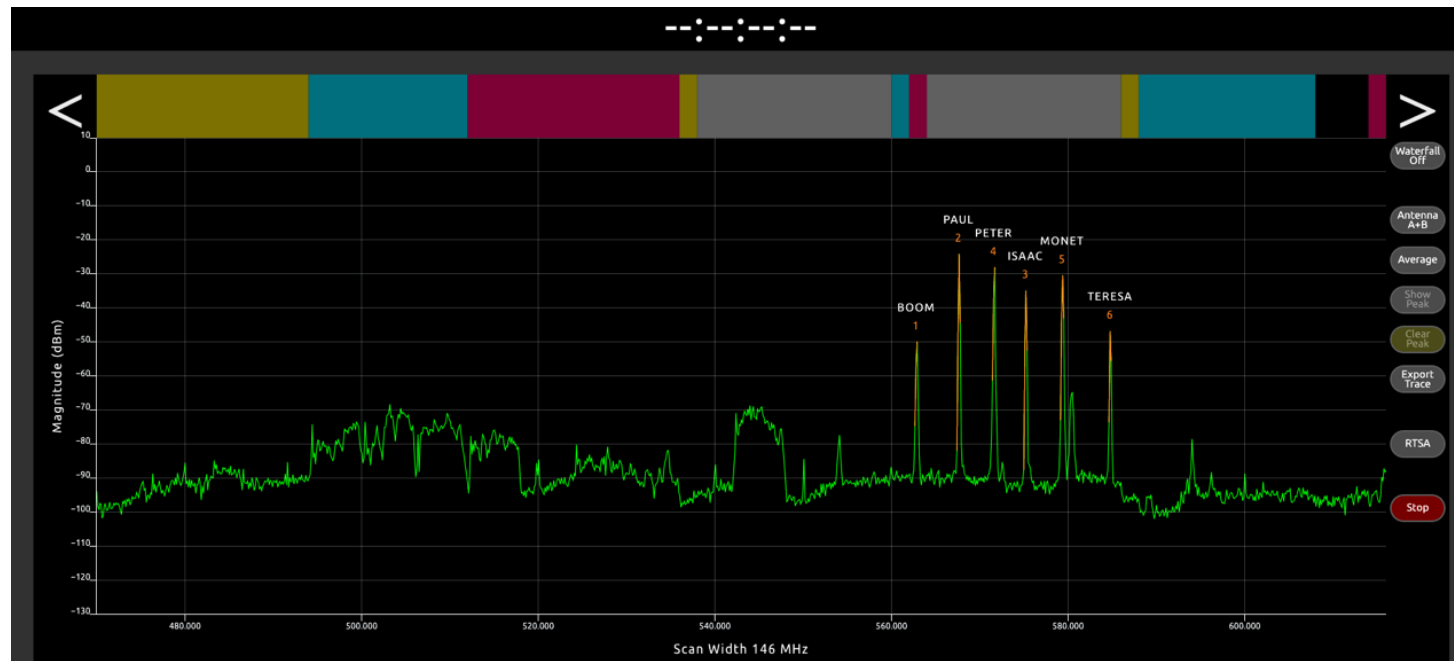


*Tip: With smartphones, tablets, and computers with trackpad devices, pinch vertically to zoom in/out vertically, pinch horizontally to zoom in/out horizontally and pinch diagonally to zoom in/out horizontally and vertically. With a mouse, rotate the mouse wheel to zoom in/out and drag to move around the trace.*

1. **Frequency Marker:** Tap or click anywhere just above the RTSA graph to display the Frequency Marker at any desired frequency. To move the marker, drag the cursor from side to side. The marker identifies a specific frequency (MHz) and its received signal strength (dBm). When the marker is placed at a restricted frequency, the 'Assign' button changes to 'Invalid' with a red background. To hide the marker, tap or click the X inside the marker popup. Tap or click the Assign button to display the 'Assign Frequency' list. Assign the Frequency Marker's displayed frequency to any receiver channel.

2. **Exit Button:** Tap or click the 'X' to exit the RTSA and return to the Home view.
3. **Waterfall Options:** Select between Off, Mini Waterfall (displays the waterfall trace above the RTSA) or Waterfall overlay (displays the waterfall on top of the RTSA).
4. **Antenna Pair Options:** Selects which antenna pairs are displayed.
5. **Antenna A/B Options:** Selects which antenna (Ant) signals are displayed.
  - a. Ant A: Only antenna A (red line)
  - b. Ant B: Only antenna B (white line)
  - c. Ant A+B: Highest of Ant A and Ant B.
  - d. Ant A, B: Both Ant A and Ant B.
6. **Trace Type:** Sets the trace characteristic. Choose from Normal or Average.
7. **Show/Hide Peak Trace Button:** Selects whether the Peak trace (gray) is displayed.
8. **Clear Peak Trace Button:** Resets the peak trace.
9. **AutoAssign Button:** Tap to bring up the blue, translucent AutoAssign range window. Drag the left and right edges of the window to set the AutoAssign frequency range. Tap the Assign button to start the AutoAssign process or tap Cancel to exit.
10. **Export Trace Button:** Tap or click to save the RTSA trace data as a .csv file and .png image file. Files are saved to the browser's download destination.
11. **Scan/RTSA Button:** Tap to toggle the display between RTSA mode and Scan mode. The front panel of A20-SuperNexus follows the selection.

## Scan View



**12. Start/Stop Button:** Starts and stops the RTSA or Scan.

**13. Filter Range Display and Selector:** Click to select a new filter range for the selected Band (1, 2, or 3)

**14. Receiver Channel Number, Transmitter Name, and Shortcut:** Click the receiver channel name/number to jump directly to the receiver's 1RX View. Drag sideways to assign the channels to a new frequency. The NexLinked transmitter will automatically follow. Dragging to within 300 kHz of another receiver channel is not allowed. When dragging, the displayed frequency value changes from white to red to indicate that the selected frequency is within 300 kHz of another channel.

**15. Waterfall display:** An RF history of RSSI levels versus frequency displayed as a color heat map ranging from black (low RSSI level), through blue, green, yellow, and orange to red (high RSSI level).

The Waterfall has three display options selected by the Waterfall button top right.

- Off (Waterfall hidden)
- Mini (Waterfall displayed above the RTSA, as shown in the picture above)
- Overlay (waterfall overlaid full height over the RTSA)

The Waterfall duration (Very Slow to Very Fast) and resolution (High, Medium, Low) can be set in the RF Settings tab.

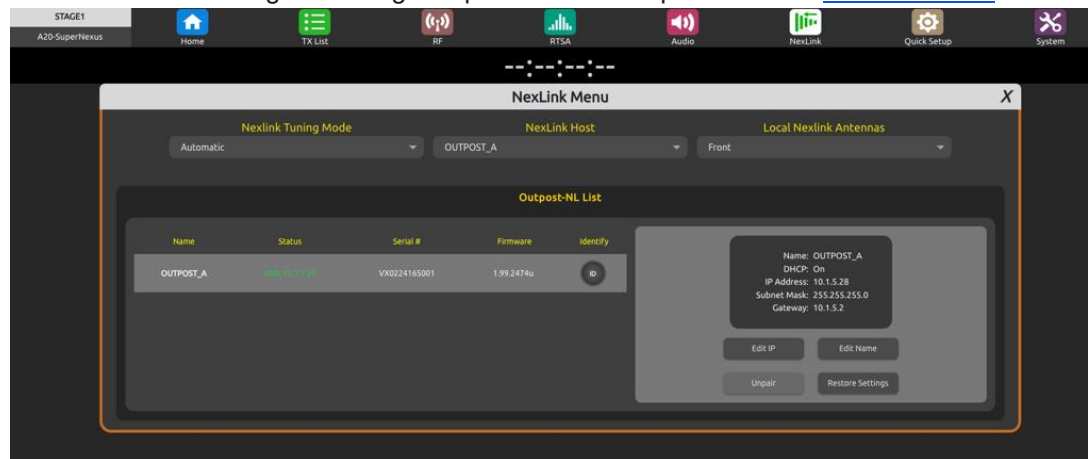
### 21.3.5 Audio

Sets sync reference, sample rate, AES, analog, MADI output, tone generator, and headphone output routing. Use the RX channel metering, gain level sliders, and Global RX Output Gain to optimize audio output levels.



### 21.3.6 NexLink

NexLink related settings including setup of the A20-Outpost-NL. See [NexLink Menu](#)





### 21.3.7 Quick Setup

Load and save settings files for quick configuration of the A20-SuperNexus's settings. See [Quick Setup Menu](#)

### 21.3.8 System

Power, security, lockout notification settings and A20-SuperNexus System Info. See [System Menu](#)

## Chapter 22: Updating Firmware

Periodically Sound Devices issues new firmware for the A20-SuperNexus. Make certain to register your product at the Sound Devices website to receive firmware update notifications.

Firmware is installed via a USB flash drive inserted into the A20-SuperNexus USB-A or USB-C ports. Download the latest firmware PRG from the Sound Devices website at <https://www.sounddevices.com/download/>

### To update SuperNexus firmware

1. Download new A20-SuperNexus firmware PRG file from the Sound Devices website.
2. Copy the PRG file to the root of a USB thumb drive that has been formatted by the A20-SuperNexus. See System menu.
3. Insert the USB thumb drive into the rear panel USB-A port or front panel USB-C port
4. Access the System menu and tap Firmware Update.
5. The A20-SuperNexus will automatically display the PRG file. Tap OK to start the update process.
6. Once programming has finished, the A20-SuperNexus will automatically restart and display “Unit has been updated.” Click OK to proceed.

*Note: If running the Web App, it is recommended to clear the browser cache after a firmware update.*

*Note: If attached to an A20-Opto, ensure that SuperNexus is running v1.10 or higher before updating firmware on SuperNexus. If updating a SuperNexus from v1.00, any attached A20-Opto needs to be physically unlinked and removed during the update.*

## Chapter 23: Channel Expansion Licenses

The A20-SuperNexus can be expanded from 16- to 24- or 32-channels by purchasing one or two 8-channel Expansion Licenses from the Sound Devices website. Permanent or rental licenses (1-week or 30-day) are available.

Channel Expansion licenses are installed via a USB thumb drive inserted into the A20-SuperNexus USB-A or USB-C ports.

### To install a license

1. Download the purchased license (.lic file) from the Sound Devices website.
2. Copy the license to the root of a USB thumb drive that has been formatted by the A20-SuperNexus.
3. Insert the USB thumb drive into the rear panel USB-A port or front panel USB-C port.
4. Access the System menu then tap Plugins.
5. Tap Install.

Once installation has finished, the A20-SuperNexus will automatically restart.

Tap the Plugins > List button to display a list of the currently installed plugins to confirm the successful installation of the expansion license.

## Chapter 24: Astral Wireless Guitar System

The Sound Devices Astral Wireless Guitar System is a paradigm-shift in sonic purity and range for the demanding, professional guitarist/bassist. It is designed to replace a premium guitar cable without altering the tone or feel of the sacred guitar/amp interaction. \*Please refer to the [Astral Wireless Guitar System User Guide](#) for detailed information.

The Sound Devices Astral Guitar System is comprised of the following products:

- A20-TX Smart Guitar Cable (patent pending)
- A20-TX transmitter
- A20-Nexus, or A20-SuperNexus multi-channel receiver
- A20-TX Guitar Strap Clip
- Optional Guitar Interface Box (recommended Radial Reamp)

### Why Use the Sound Devices Astral Wireless Guitar System?

It is commonly known that guitars, guitar cables, pedals and amps all interact with one another to give a unique character to each rig. It is also well known that replacing the guitar cable with a wireless system can dramatically change this character. Much of this is due to the imperfect nature of many wireless systems, but less well known is that every cable's added capacitance (depending on the type and length of the cable) interacts with a guitar's pickup. This is why many cables sound different from each other. The input impedance of the amp also will change the character of the guitar's pickup. These effects range from very subtle to extreme, depending on the type of guitar, pickups, cable(s), pedals and amp(s) in the rig.

Compromising tone and feel to get wireless capability is a thing of the past!

The heart of the Astral Wireless Guitar System is the Smart Guitar Cable. This patent-pending cable houses sophisticated, miniaturized circuitry within the 1/4" plug. This circuitry varies the actual capacitance that the guitar's pickup is loaded with – just like a cable. This capacitance is not a mere “emulation,” but actual, real capacitance implemented with very low-distortion capacitors. The input impedance that the guitar's pickup drives is also adjustable, allowing the player to recreate the exact feel of the guitar wired to the input of a given amp or pedalboard. This cable feeds the A20-TX transmitter and A20-Nexus receiver, both renowned for their unparalleled sonic quality. Since the Smart Guitar Cable's circuitry is within the 1/4" plug, it also allows for a truly balanced audio connection between the guitar and the transmitter eliminating any noise from that critical connection - without any tone or feel changes.

### Key Features

- Adjustment of cable capacitance from 0 pF to 1500 pF in 25 pF steps. This corresponds to 1 to 60 feet of typical guitar cable in 1-foot steps.
- Selectable input impedance of 100k, 1M, and 10M ohms, allowing the guitar's pickup to "see" the same input characteristics as the amplifier.
- An incredible 18V of signal headroom at 1/4" plug – no unwanted distortion, offering a huge 140dB of dynamic range with any guitar or bass, even super-hot humbuckers and active pickups.
- Ultra-low latency of 1.9ms for excellent feel - especially important for in-ears.

## Additional Features

- Adjustment of these parameters from the A20-TX transmitter or remotely from the A20-Nexus receiver.
- 0 dB gain from ¼" input to ¼" output, just like a cable - the amplifier or pedalboard sees your guitar's output exactly.
- Balanced output from ¼" guitar plug to transmitter input, for the ultimate in noise-rejection without tone or feel changes.
- Two-sided, secure guitar strap clips that prevent the transmitter from loosening or falling off the guitar strap.
- 100% digital modulation, with full 10 Hz – 20 kHz audio bandwidth and ultra-wide 140dB dynamic range.
- Ultra-low-noise circuitry – keeps the signal clean even at the highest gain settings.
- Unrivaled RF range and RF tuning bandwidth (169 MHz – 1525 MHz). The same transmitters and receivers can be used in any country around the world.
- Optional ¼" output interface box with Lundahl isolation transformers, Iso and Direct modes, and ground-lift per channel. Available from [www.linkusa-inc.com](http://www.linkusa-inc.com)

## Chapter 25: Accessories

### 25.1 Included

- 2x A20-Monarch Antennas
- 2x Articulating Arm with ¼"-20 mount for mounting A20-Monarch Antennas
- 2x 72" BNC to BNC RG-58 Antenna Cables
- 2x 2.4 GHz Antennas, SMA-M
- USB-C 3.0 to USB-C 3.0 cable
- Power Cord - US
- Power Cord - Australia
- Power Cord - EU cord (Schuko)
- Power Cord - UK
- 2x Rack Ears (Assembled to the unit)
- A20-SuperNexus Welcome Magnet
- 4x Rubber Feet
- 4x plastic SFP Cage Protective Cover
- 2x Promo Stickers
- Terms and Conditions Sticker
- Product Registration Label

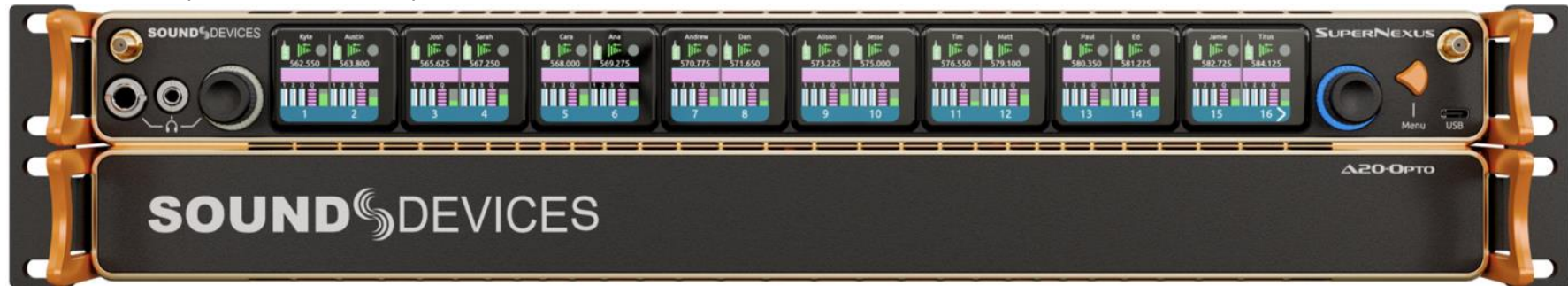
### 25.2 Optional

- A20-Outpost-NL
- A20-Opto
- A20-Monarch Antenna (inc. articulating arm, BNC to BNC cable, BNC to SMA cable)
- 2.4 GHz Antennas, SMA-M (set of 2)
- A-VHF-Dipole-BNC (set of 2 VHF antennas)

## 25.2.1 A20-Opto

The A20-Opto is an optional expansion box for the A20-SuperNexus that adds Optocore, MADI, AES, and analog outputs plus GPIO functionality. The A20-Opto comes in two versions, the A20-Opto-HMA and A20-Opto-ST. The only difference between the A20-Opto-HMA and A20-Opto-ST is the connector type used for the Optocore audio outputs, HMA or ST respectively. The A20-Opto connects to the A20-SuperNexus via a multi-pin connector located on the bottom of A20-SuperNexus. Optocore output channels carry audio outs 1-64. The A20-Opto has 2x MADI outputs on 2x BNC connectors. At 48k, both MADI Outputs are hardwired to audio outs 1-64. At 96k, MADI Out 1 carries 1-32 and MADI Out 2 carries 33-64. For 96 kHz applications, the MADI outputs can be configured as Hi-Speed or SMUX 96k MADI format. The 32-channel Analog and AES digital (AES72 Type 1M) Outputs are configured as a redundant set of outputs that are fed from the same sources routed to the analog and digital outputs on the A20-SuperNexus.

Picture shows SuperNexus with A20-Opto fitted underneath



Picture shows the rear panel of the A20-Opto-HMA

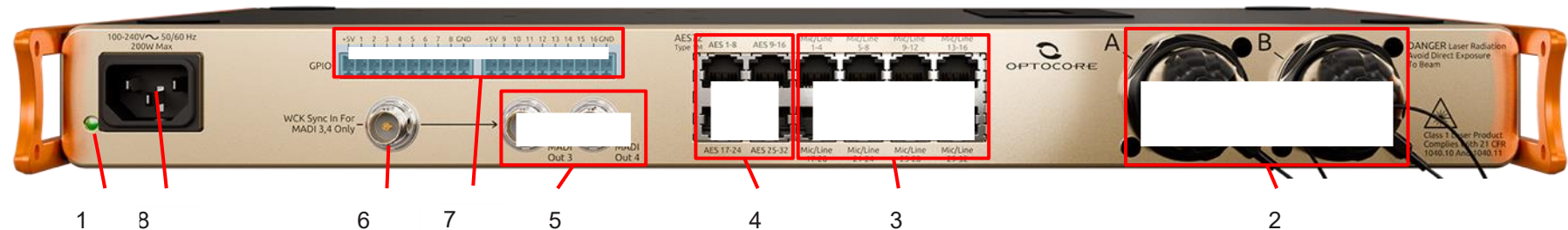


## A20-Opto Key Features

- Adds 2x native Optocore audio loops for outputting up to 64 channels to DiGiCo consoles.
- Optocore ports can be swapped between HMA, ST, or OpticalCon connector types (A20-Opto-HMA and A20-Opto-ST come with HMA or ST optical connectors pre-installed, respectively.)
- Adds a fully redundant AC Mains supply that can power both the A20-Opto and A20-SuperNexus. The A20-SuperNexus AC Mains supply can power both units too.
- Adds redundant set of MADI outputs with their own word clock sync input
- Adds redundant set of analog and digital AES72 outputs
- Adds 16x GPIO connectors

## A20-Opto Rear Panel

(A20-Opto-HMA model shown)



### 1: AC Mains LED

Indicates that AC power is connected to the A20-Opto.

### 2: Optocore Ports A, B (A20-Opto-HMA connectors shown)

The connector type depends on the A20-Opto model, A20-Opto-HMA or A20-Opto-ST. Dual Optocore connectors for connection to DiGiCo consoles. The Optocore connectors can optionally be swapped between HMA, ST or OpticalCon connectors, and the internal SFP modules can be changed to different wavelengths using special disassembly instructions - contact Sound Devices.

- OpticalCon Connector Assembly - DiGiCo part number: 601-00001
- ST Connector Assembly - DiGiCo part number: 601-00002

### 3: Analog Outputs

RJ45 connectors conforming to the AES72 pin-out standard for up to 32 channels of Analog Mic/Line output.

### 4: AES Outputs

RJ45 connectors conforming to the AES72 pin-out standard for up to 32 channels of AES digital audio output



**5: MADI Outputs 3 and 4**

Dual BNCs for outputting 48 or 96 kHz MADI. Hi-Speed and SMUX 96 kHz MADI streams are supported.

**6: WCK Sync Input**

BNC for connecting a Wordclock sync reference for the MADI Out 3 and 4 digital outputs.

**7: GPIO**

16 user-configurable GPIO ports

**8: AC Power Input**

100-240V, 200W max. If A20-SuperNexus's AC power supply fails, the A20-Opto's AC power input will power both the A20-Opto and A20-SuperNexus.

**25.2.1.1 A20-Opto Setup and GPIO**

Tap the Audio Out > A20-Opto Setup button in Audio menu OLED 2 to access the A20-Opto Setup menu which provides access to the expansion box's Optocore, MADI Out 3&4 Sync Ref, and GPIO settings.

*SuperNexus Audio Out Menu**A20-Opto Setup Menu***MADI Out 3&4 Sync Reference**

Determines the sync reference for the A20-Opto's MADI outputs 3 and 4. Choose from:

- Follow [Uses the same sync reference as the A20-SuperNexus]. \*Default

- **WCK In** [Uses the A20-Opto's WCK BNC input as sync reference for its MADI out 3&4]. This allows the MADI outs to sync to a different clock domain than the A20-SuperNexus.
- **48k** [48 kHz SRC'd to A20-SuperNexus Sync Ref]. If A20-SuperNexus's internal sample clock is 48k, the clock is passed through and if 96 kHz, it is divided by 2.
- **96k** [96 kHz SRC'd to A20-SuperNexus Sync Ref]. If A20-SuperNexus's internal sample clock is 96k, the clock is passed through and if 48 kHz, it is multiplied by 2.

*Note: If the sync reference results in the A20-Opto running at 96 kHz, the A20-Opto MADI out format is determined by the '96k MADI Format' setting on the A20-SuperNexus.*

### Optocore ID

Sets the Optocore ID. Choose from 11 to 24.

### Optocore Speed

Sets the Optocore operational speed. Choose 1G or 2G. 2G is default.

### Optocore Outputs

Sets the number of activated Optocore output channels. Options are: 1-8, 1-16, 1-24, 1-32, 1-64, None

### GPIO 1-16

Select which A20 transmitter function is actioned when a GPIO input (GPI) is triggered.

Select which A20 transmitter function triggers a GPIO output (GPO). Can be used to trigger macros on a console, relays, lamps, bells etc.

Tap a GPIO 1- GPIO 16 button to configure its GPIO's settings.

GPIO 1	Input, Active High	GPIO 2	Output, Active High
Action	Transmitter Power On	Action	A20-TX Switch On
Target Channel	RX Channel 1	Source Channel	RX Channel 3
OK	Cancel	OK	Cancel

**GPIO 'n':**

Lists the following voltage triggering options:

**Inputs**

- Input, Latch (Triggers action to change state (ON or OFF) when the GP input transitions from low to high). This is the default for GPIO 1-8.
- Input, Toggle (Triggers the ON action when the GP input transitions from low to high. Triggers the OFF action when the GP Input transitions from high to low).
- Input, One Shot ON (Triggers the ON action when the GP input transitions from low to high)
- Input, One Shot OFF (Triggers the OFF action when the GP input transitions from low to high)

**Outputs**

- Output, Latch ON (GP output changes state (high or low) each time the source condition changes from OFF to ON). This is the default setting for GPIO 9-16.
- Output, Latch OFF (GP output changes state (high or low) each time the source condition changes from ON to OFF).
- Output, Direct (GP output directly follows the source condition - GP output goes high when source condition goes ON and goes low when source condition goes OFF).
- Output, One Shot ON (GP output goes high for 1 second when the source condition changes to ON).
- Output, One Shot OFF (GP output goes high for 1 second when the source condition changes to OFF).

**Target Actions and Source Conditions:**

- When the GPIO is configured as an input (GPI) using the GPIO 'n' button, the Action button lists the options that can be triggered when GPI is active.
- When the GPIO is configured as an output (GPO) using the GPIO 'n' button, the Condition button lists the options that can be set to trigger a GPO when they are active.

GPI Target Action Options	GPO Source Condition Options
TX Power TX RF Power TX Mute TX Record TX ID None (default)	A20-HH/TX Control-Sw Macro A20-HH Button-L Macro A20-HH Button-C Macro A20-HH Button-R Macro  TX Power TX Mute TX Record None (default)

**Target/Source Channel:**

- When the GPIO is configured as an input (GPI) using the GPIO 'n' button, the Target Channel button is displayed. This selects which RX channels the chosen Action targets.
- When the GPIO is configured as an output (GPO) using the GPIO 'n' button, the Source Channel button is displayed. This selects which RX channel(s) conditions affect the GPO.

GPI Target Channel Options	GPO Source Channel Options
RX Channel 1 -> RX Channel 16 (1-32 with 2x expansion license installed)	RX Channel 1 -> RX Channel 16 (1-32 with 2x expansion license installed)

**A20-Opto Info**

Displays the A20-Opto's firmware version and serial number. The firmware version flashes red if the A20-Opto's firmware is incompatible with the currently installed SuperNexus firmware.

**Updating the A20-Opto's firmware**

The A20-Opto must be connected to a SuperNexus for its firmware to be updated. Its firmware is embedded within the SuperNexus. prg firmware update file and is updated automatically when the SuperNexus's firmware is updated.

If the A20-Opto firmware is incompatible with the SuperNexus firmware, the firmware version info in the A20-Opto Info OLED flashes red. Update to the latest SuperNexus firmware with the A20-Opto installed to resolve the issue.

*Note: If attached to an A20-Opto, ensure that SuperNexus is running v1.10 or higher before updating firmware on SuperNexus. If updating a SuperNexus from v1.00, any attached A20-Opto needs to be physically unlinked and removed during the update.*

## A20-Opto Accessories

### Included

- 1x Bridge board Assembly
- Power Cord - US
- Power Cord - Australia
- Power Cord - EU cord (Schuko)
- Power Cord - UK
- 2x Double Rack Ears
- 2x Rear Accessory Plate
- 16x Screw M4x0.7 8mm
- 1x Hex key 2.5 mm; 1x Hex key 1.5 mm
- A20-Opto Welcome Magnet
- 4x Rubber Feet
- 2x Promo Stickers
- Terms and Conditions Sticker
- Product Registration Label

### A20-Opto Installation

Please refer to the separate A20-Opto Installation Guide available here: <https://guides.sounddevices.com/a20-opto/>

## 25.2.2 A20-Outpost-NL

The A20-Outpost-NL is a remote NexLink-antenna box. NexLink is Sound Devices' proprietary long-distance remote control of Astral transmitters. This game-changing system allows remote control of all parameters on the transmitters – and has a distance far exceeding the RF audio link. Since NexLink operates at 2.4 GHz, its antennas cannot be remote-mounted more than a few inches due to cable loss – until now. With the A20-Outpost-NL, the NexLink antennas can be located near the action, along with the UHF audio antennas. The remote mounting is simple, using either Cat-6 Ethernet cable or even fiber optic Ethernet. One A20-Outpost-NL will cover all the action within a large stadium, with its antennas in the arena, not the equipment rack. See [NexLink Menu](#) for how to setup an A20-Outpost NL.

### Key Features

- Powered by PoE or USB-C 15W power supply
- Cat-6 (Ethercon connector) or Optical Ethernet (via SFP module)
- Rugged, rain-resistant chassis
- Dual ¼", 3/8", 5/8" mounting hole blocks
- Pair with A20-SuperNexus via the Outpost-NL's USB-C port. Supplied with USB-A to USB-C pairing cable.
- Switch NexLink antennas between the local SuperNexus and A20-Outpost-NL.
- Customize an Outpost-NL's name for easy identification e.g. Stage 1, Stage 2 etc.
- Monitor Outpost-NL connection status directly from A20-SuperNexus.
- Recessed reset button for resetting to factory defaults
- Rear panel LED for indicating power, ID'ing from SuperNexus, and firmware update progress
- Firmware updates via ethernet or USB-A thumbdrive.



*Note: The Outpost-NL must be powered from either a PoE or USB-C 15W power supply.*

*Note: The rear panel Power LED illuminates as follows: Solid blue = starting up; Solid green = powered on; Flashing blue = Receiving NexLink ID command; Alternating red, green, blue = updating firmware; Flashing red = failed update.*

**Outpost-NL Safety Information****Class A:**

Warning: Operation of this equipment in a residential environment could cause radio interference.

**Class A FCC Statement:**

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

**Class A ISSED Statement:**

CAN ICES-003(A) / NMB-003(A)



### 25.2.3 A20-Monarch Antenna

The A20-SuperNexus ships with two A20-Monarch, omnidirectional, wide-bandwidth (470-1525 MHz) antennas. These antennas provide uniform coverage and gain across the exceptionally wide SpectraBand tuning range of A20-SuperNexus. Each antenna is paired with a multi-function clamp and articulating arm, as well as an RG58 BNC-M to BNC-M cable (72 in.)



When purchased as a separate accessory, the A20-Monarch antenna also includes an RG174 BNC-M to SMA-M cable.

The A20-Monarch kit comes with the following parts:

- 1x A20-Monarch antenna with BNC-F connector and 1/4"-20 female threaded mount
- 1x adjustable clamp and articulating arm with 1/4"-20 male threaded mount
- 1x 30 in/75 cm BNC-M to BNC-M cable
- 1x 18 in/45 cm BNC-M to SMA-M cable

## Chapter 26: Restricted Frequency Authorizations

The wireless system operator needs to be aware of local regulations and comply with all applicable laws regarding operation of wireless devices.

Frequency Authorizations allow the unlocking of restricted frequencies that require proof of a valid license before they can be used. Once a license has been granted, please contact Sound Devices (RF\_Request@SoundDevices.com) to obtain the necessary authorization. An Authorization ID and License Code will be generated by Sound Devices based on the license provided. The Authorization ID or License Code can be entered into the A20-Remote App and then synchronized with an A20-Nexus Go, A20-Nexus, or A20-SuperNexus receiver and its paired A20 transmitters.

Synchronized Frequency Authorizations can be viewed on the SuperNexus and paired A20-TX and A20-HH transmitters. See System Menu > [Frequency Authorization](#) for more info.

An example of a frequency band requiring an unlock code in the United States is 1435-1525 MHz. Program Making and Special Events (PMSE) wireless operators typically call 1435-1525 MHz the "AFTRCC band". AFTRCC stands for Aerospace and Flight Test Band Coordinating Council. This organization coordinates several frequency bands for use by air and spacecraft in the United States. This includes 1435-1525 MHz.

Per the United States Federal Communications Commission (FCC) rules, wireless microphones are allowed as secondary users in the 1435-1525 MHz AFTRCC band. This is detailed in the FCC Part 74 rules:

<https://www.ecfr.gov/current/title-47/chapter-I/subchapter-C/part-74>

One section of the Part 74 rules that's of particular interest to operators seeking an AFTRCC band license is 74.803(d):








[https://www.ecfr.gov/current/title-47/chapter-I/subchapter-C/part-74#p-74.803\(d\)](https://www.ecfr.gov/current/title-47/chapter-I/subchapter-C/part-74#p-74.803(d))

Generally speaking, a wireless operator needs to show they've used all other available spectrum before the AFTRCC will consider a license request in the 1435-1525 MHz range. If granted, the license is normally assigned for a specific location and a specific time range.

Sound Devices encourages all wireless operators to obtain a Part 74 license, and specifically to make sure applicable parts of the 600 MHz and 950 MHz range are included with their license application. This can help show an operator is aware of the available spectrum and is utilizing it responsibly.

More information on Part 74 licensing can be found here: <https://www.local695.com/fcc-licensing/>

## Chapter 27: Connector Pin Assignments

Connector		Pin Assignments	Notes
BNC (LTC/WCK input)		Center pin - signal Sleeve - ground	Unbalanced 75-ohm cable recommended
BNC (MADI input (sync only) and MADI digital audio outputs)		Center pin - signal Sleeve - ground	Unbalanced 75-ohm
BNC (Rear Antenna inputs and cascade outputs)		Center pin - signal Sleeve - ground	50-ohm
SMA (2.4 GHz, Front and Rear NexLink)		Center pin - signal Sleeve - ground	SMA-F ports for connecting 2.4 GHz SMA-M antennas for NexLink.
SFP		Per SFF INF-8074i standard	For Dante and Control networks.
RJ45 (Network)		Standard 8P8C (female)	For Dante and Control networks. Dante/Ctrl 1 port supports PoE+
RJ45 (AES and Analog Outputs)		AES72 Type 1M pin-out standard. Shield - chassis ground Pin 1: Pair 1 (+) Pin 2: Pair 1 (-) Pin 3: Pair 2 (+) Pin 4: Pair 3 (+) Pin 5: Pair 3 (-) Pin 6: Pair 2 (-) Pin 7: Pair 4 (+) Pin 8: Pair 4 (-)	Balanced wiring. 2ch per AES3 twisted pair. 1ch per analog twisted pair.

## Chapter 28: Specifications

All specifications are subject to change without prior notice. For the latest information available on all Sound Devices products, visit our website:

[www.sounddevices.com](http://www.sounddevices.com)

### 28.1 A20-SuperNexus Specifications

**Patents:** The A20-SuperNexus is protected by US patents US10678294B2, US20190166523A1, International patent WO2018022209A1, and several patents pending.

#### RF

##### Tuning

- 169 to 1525 MHz (1356 MHz switching bandwidth)
- 25 kHz steps
- SpectraBand Technology for maximum rejection of out-of-band signals
- Available frequencies depend on country of operation
- 3 bands each with their own assignable filter range, typically 24 MHz wide for a total of 72 MHz simultaneously usable bandwidth.

##### Modulation

- Proprietary, 100% digital RF modulation
- Standard, Long Range, or T&M (Test & Measurement) selectable per channel.

##### Spurious Rejection

- >100 dB typical

##### Cascade output

- 50-ohm
- +1 dB gain from BNC input to output; less than 1 dB input to output loss in the event of power failure.
- Band-limited as per LNA pre-select filter.

##### RF Bias output

- 12V, 200 mA each BNC
- Smart antenna support, Wisycom-compatible

**Antenna Inputs**

- Multiple Antenna Modes switchable between Diversity, 4Versity, 4Versity + 1 Pair, HexVersity, 3-Zone Combiner, 2-Zone Combiner + 1 Pair, 3-Way Diversity, Diversity + 1 Pair

**Audio****Latency**

- Standard modulation = 2 ms, analog or digital outputs
- Long Range modulation = 3.9 ms, analog or digital outputs
- T&M (Test and Measurement) modulation = 7 ms, analog or digital outputs

**Audio Frequency Response**

- 10 Hz–20 kHz, +/- 1 dB relative to 1 kHz

**Dynamic Range**

- > 140 dB with an Astral transmitter

**Analog Output**

- RJ45 connectors conforming to the AES72 Type 1M pin-out standard, balanced connection

**Analog Output Level**

- Line: +20 dBu for 0 dBFS
- -10: +6 dBu for 0 dBFS
- Mic: -20 dBu for 0 dBFS

**Tone Generator**

- 1 kHz tone, adjustable from -20 to 0 dBFS

**Audio Output Sample Rate**

- 48 or 96 kHz

**Digital Audio Output**

- MADI: unbalanced BNC, 75-ohm output impedance
- AES3: RJ45 connectors conforming to the AES72 Type 1M pin-out standard, balanced connection, 110-ohm output impedance
- Optocore with optional A20-Opto-HMA (HMA connector) or A20-Opto-ST (ST connector)

**Audio-Over-IP**

- Dante, 48 or 96 kHz sample rate

## Sync

- LTC / Wordclock, input impedance 75-ohm, BNC
- Dante
- MADI, unbalanced BNC, 75-ohm output impedance

## Network

### Dante Audio-Over-IP

- 32 input/output channels.
- Primary and Secondary ports for Dante Redundancy

### Control

- Web-based control and monitoring of all A20-SuperNexus settings
- GPIO with the optional A20-Opto-HMA or A20-Opto-ST accessory

### Connections

- 2x RJ45 ports and 2x SFP ports: For Dante, Control, and A20-Outpost-NL

## NexLink

### Protocol

- 2.4 GHz, proprietary frequency-hopping backlink control of transmitters over long distance

### Connections

- Front or rear diversity pair
- SMA-F ports for connecting 2.4 GHz SMA-M antennas

## USB

### Type

- USB-A: 5V, 1.0A output; supports keyboards, flash drives, Astral transmitters, Outpost-NL, and USB hubs
- USB-C: 5V, 3A output; supports keyboards, flash drives, Astral transmitters, Outpost-NL, and USB hubs

### Drive Format

- FAT32

**Powering**

- AC Input: 100-240 VAC, 200W
- DC Input: 10-18 VDC, 200W
- PoE+ out (max 30W)

**Environmental****Operating Temperature Range**

- -10 to 40 C; 14 to 104 F

**Dimensions (H x W x D)**

- 4.2 cm x 44.5 cm x 31.1 cm; 1.65 in x 17.5 in 12.24 in

**Weight**

- 4.12 kg (unpackaged)
- 9.00 lbs. (unpackaged)
- 4.3 kg (packaged)
- 9.5 lbs. (packaged)



## 28.2 A20-Opto Specifications

### Audio Outputs

- RJ45 connectors conforming to AES72 Type 1M pin-out standard, balanced connection

### Analog Output Level

- Line: +20 dBu for 0 dBFS
- -10: +6 dBu for 0 dBFS
- Mic: -20 dBu for 0 dBFS

### Digital Audio Output

- MADI: unbalanced BNC, 75-ohm output impedance
- AES3: RJ45 connectors conforming to the AES72 Type 1M pin-out standard, balanced connection, 110-ohm output impedance

### WCK Sync Input

- 75-ohm

### GPIO Ports

- 5V, 1A available on Pin 10. Pin 1 = Ground
- Each pin configurable as input or output
- Input: 60k ohm typical,  $V_{ih} = 3.5V_{min}$ ,  $V_{il} = 1.5V_{max}$
- Output: 100-ohm out typical

### Optocore

- HMA model has two external HMA connectors
- ST model has two external ST connectors
- Internal multimode fiber pigtail
- Internal SFP modules, 850 nm wavelength

## 28.3 A20-Outpost-NL Specifications

### Network

#### Connections

- 1x RJ45 port and 1x SFP port: For NexLink control connection to SuperNexus and Outpost-NL firmware updates

### NexLink

#### Protocol

- 2.4 GHz, proprietary frequency-hopping backlink control of transmitters over long distance

#### Connections

- 2x SMA-F ports for connecting 2.4 GHz SMA-M antennas

### USB

#### Type

- USB-A: 5V, 1.5A output; supports USB thumb drive (formatted FAT32) for firmware updates only.
- USB-C: 5V, 3A (15W) for pairing with SuperNexus and/or powering

### Powering

- PoE+ In (15W)
- USB-C: 5V, 3A (15W)

### Environmental

#### Operating Temperature Range

- -10 to 40 C; 14 to 104 F

#### Dimensions (H x W x D)

- 3.2 cm x 16 cm x 13.2 cm; 1.26 in x 6.3 in x 5.2 in

#### Weight

- 0.66 kg (unpackaged)
- 1.45 lbs. (unpackaged)

## 28.4 A20-Monarch Specifications

### Frequency range

- 470 MHz - 1600 MHz

### Gain

- 2.2 dBi

### Pattern

- Omnidirectional

### Return Loss

- Better than 15 dB across entire 470 - 1600 MHz range

### Mounting Threads

- 1/4"-20

### Dimensions (H x W x D)

- 17.0 cm x 21.0 cm x 1.7 cm
- (6.68 in x 8.26 in x 0.67 in)

### Weight

- 0.12 kg (unpackaged)
- 0.26 lbs. (unpackaged)

## Chapter 29: Note on RF Interference

Sound Devices does not guarantee the absence of any interfering spurs across all bands in all situations. Some small spurs can originate within the SuperNexus, and others can come from many sources (Ethernet, AES/EBU interconnects, external mixer/recorders, USB drives, USB keyboards, etc.). This, combined with the extreme sensitivity of the SuperNexus's front end, mean that the user must be very careful with the quality of cables used, as well as antenna and antenna cable routing and placement. We highly recommend placing antennas as far as possible from other pieces of equipment, especially antennas from intentional transmitters such as IFB units. Sound Devices recommends using high-quality, shielded Ethernet cables (whether using PoE+ or not) to minimize interference at RF frequencies caused by Ethernet. Additionally, it is a best practice to keep Ethernet cables as far away from the receiving antennas and the receiving antennas' coax cable (if used).

## Chapter 30: Servicing the A20-SuperNexus

Do not attempt to service the A20-SuperNexus. The internal parts are microscopic and not user serviceable. Please send to Sound Devices for any service needs.

<https://service.sounddevices.com/contact-support/>

## Chapter 31: Warranty

Sound Devices, LLC warrants the items listed above against defects in materials and workmanship for a period of ONE (1) year from date of original retail purchase. Users who register their product directly with Sound Devices Technical Support using the online form or by phone, will receive an additional ONE (1) year of warranty coverage, extending the complete warranty period to TWO (2) years from the date of original retail purchase. To extend the warranty coverage period, registration must be completed within the initial ONE (1) year warranty period. Products must be purchased through authorized Sound Devices resellers to qualify for Warranty coverage. Damage resulting from the opening of a Sound Devices product or attempted repairs by a non-authorized Sound Devices repair technician will void warranty coverage.

This is a non-transferable warranty that extends only to the original purchaser. Sound Devices, LLC will repair or replace the product at its discretion at no charge. Warranty claims due to severe service conditions will be addressed on an individual basis.

THE WARRANTY AND REMEDIES SET FORTH ABOVE ARE EXCLUSIVE. SOUND DEVICES, LLC DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. SOUND DEVICES, LLC IS NOT RESPONSIBLE FOR SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES ARISING FROM ANY BREACH OF WARRANTY OR UNDER ANY OTHER LEGAL THEORY. Because some jurisdictions do not permit the exclusion or limitations set forth above, they may not apply in all cases.

For all service, including warranty repair, please contact Sound Devices for an RMA (return merchandise authorization) before sending your unit in for repair. Products returned without an RMA number may experience delays in repair. When sending a unit for repair, please do not include accessories, including SSD drives, CF cards, batteries, power supplies, carry cases, cables, or adapters unless instructed by Sound Devices. Sound Devices repairs and replacements may be completed using refurbished, returned or used parts that have been factory certified as functionally equivalent to new parts.

Sound Devices, LLC  
Services Repair RMA #XXXXX  
E7556 State Road 23 and 33  
Reedsburg, WI 53959 USA  
Telephone: +1-608-524-0625

## Chapter 32: Legal Notices

Product specifications and features are subject to change without prior notification. Read and fully understand this manual before operation.

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**FCC Conformity**

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate Band frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to Band communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to Band or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced Band/TV technician for help.

This device complies with FCC RF exposure limits for general population / uncontrolled environments. A separation distance of at least 20 cm must be maintained between the antenna and all persons. This device must not be co-located with any other antenna or transmitter. This device has been approved to operate with the antenna type listed below:

Model: W1010  
Manufacturer: PulseLarson

Type: Wireless External Antenna for 2.4 GHz Application  
Max. Gain: 2.0dBi

No change to the antenna type is permitted. Any change to the antenna could result in the device exceeding the RF exposure requirements and void the user's authority to operate the device.

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

To comply with FCC part 15 rules in the United States, the A20-SuperNexus receiver must be professionally installed. It is the responsibility of the operator and professional installer to ensure that only certified antennas are to be used in the United States.

**Industry Canada Conformity**

This device complies with ISED RF exposure limits for general population / uncontrolled environments. A separation distance of at least 20 cm must be maintained between the antenna and all persons. This device must not be co-located with any other antenna or transmitter. This device has been approved to operate with the antenna type listed below:

Model: W1010	Type: Wireless External Antenna for 2.4 GHz Application
Manufacturer: PulseLarson	Max. Gain: 2.0dBi

No change to the antenna type is permitted. Any change to the antenna could result in the device exceeding the RF exposure requirements and void the user's authority to operate the device.

This Device complies with Industry Canada License-exempt RSS standard(s). Operation is subject to the following two conditions: 1) this device may not cause interference, and 2) this device must accept any interference, including interference that may cause undesired operation of the device.

Cet appareil se conforme aux normes ISED sur les limites d'exposition aux Band Fréquences pour la population générale et environnements non contrôlés. Une distance minimale d'au moins 20 cm doit être maintenue entre l'antenne et toute personne. Cet appareil ne doit pas être co-localisé avec toute autre antenne ou transmetteur. Cet appareil a été approuvé pour fonctionner avec le type d'antenne ci-dessous:

Model: W1010	Type: Antenne externe sans fil pour application à 2.4 GHz
Manufacturer: PulseLarson	Gain Max: 2.0 dBi

Aucun changement de type d'antenne n'est permis. Tout changement sur l'antenne pourrait causer l'appareil à excéder les limites d'exposition RF et annuler le droit de l'utilisateur à faire fonctionner cet appareil.

Cet appareil est conforme avec Industrie Canada, exempts de licence standard RSS (s). Son fonctionnement est soumis aux deux conditions suivantes: 1) ce dispositif ne peut pas causer d'interférences, et 2) ce dispositif doit accepter toute interférence, y compris les interférences qui peuvent causer un mauvais fonctionnement de l'appareil.

**WEEE Statement**

If you wish to discard a Sound Devices product in Europe, contact Sound Devices (England) for further information.






## Chinese Conformity

This information is presented to comply with the requirements of Chinese law SJ/T11363-2006

此資料為顯示符合中國法律SJ/T11363-2006 的要求。

零件项目(名称) (Component Name)	有毒有害物质或元素(Hazardous Substances or Elements)					
	铅 Lead (Pb)	汞 Mercury (Hg)	镉 Cadmium (Cd)	六价铬 Chromium VI Compounds (Cr6+)	多溴联苯 Poly-brominated Biphenyls (PBB)	多溴二苯醚 Poly-brominated Diphenyl Ethers (PBDE)
印制电路配件 (Printed Circuit Assemblies)	X	O	X	O	O	O
插入式插件 (Plug assembly)	O	O	O	O	O	O
外接电(线) 缆 (External Cables)	O	O	O	O	O	O
接線器 (Wiring looms)	O	O	O	O	O	O
散热片(器) (Heatsinks)	O	O	O	O	O	O
螺帽,螺钉(栓),螺旋(钉),垫圈,紧固件 (Nuts, bolts, screws, washers, Fasteners)	O	O	O	O	O	O
电源供应器 (Power Supply Unit)	O	O	O	O	O	O
显示(器) (Display)	O	O	O	O	O	O
金属制品[制造] (Metalwork)	O	O	O	O	O	O
塑胶制品[制造] (Plastic work)	O	O	O	O	O	O
文件说明书 (Paper Manuals)	O	O	O	O	O	O
光盘说明书 (CD Manual)	O	O	O	O	O	O
<p>O: 表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T 11363-2006标准规定的限量要求以下。 O: Indicates that this toxic or hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in SJ/T11363-2006.</p> <p>X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T 11363-2006 标准规定的限量要求。 X: Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in SJ/T11363-2006.</p>						

	Allen & Heath 確定其產品在標準使用條件下，至少 10 年不會釋放 SJ/T11363-2006 中所列明的任何禁止物質。
	溫度範圍：0 - 40°C 濕度範圍：0 - 95% 產品應按照用戶手冊中的說明保持通風。 電源：90 - 250V AC, 50/60 Hz. 如果產品有缺陷必須維修後才可使用。 所有維修必須是由授權的代理機構進行。

## Chapter 33: Declaration of Conformity



**Manufacturer's Name:** Sound Devices, LLC  
**Manufacturer's Address:** E7556 State Road 23 and 33 Reedsburg, WI 53959 USA

**We, Sound Devices LLC, declare under our sole responsibility that the product**

Product Name: A20-SuperNexus  
Model Number: A20-SuperNexus  
Description: Digital Wireless Receiver

**is in conformity with the essential requirements of the following relevant Union harmonization legislation:**

Band Equipment Directive (RED)	2014/53/EU
Low Voltage Directive	2014/35/EU
RoHS Directive	2011/65/EU

**The following harmonized standards and/or normative documents were applied:**

Health & Safety (Article 3.1(a) of RED)	EN 62368-1:2014 EN 50566:2017
EMC (Article 3.1(b) of RED)	EN 301-489-1 v2.2.3:2019 EN 301-489-9 v2.1.1:2019 EN 301-489-17 v3.2.4:2020
RF Spectrum (Article 3.2 of RED)	EN 300 422-1 v2.1.2:2017 EN 300 328 v2.2.2:2019 EN 300 440 v2.1.1:2017

**Signed for and on behalf of Sound Devices LLC:**

April 22, 2024

Date

Matt Anderson - Sound Devices, LLC President

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