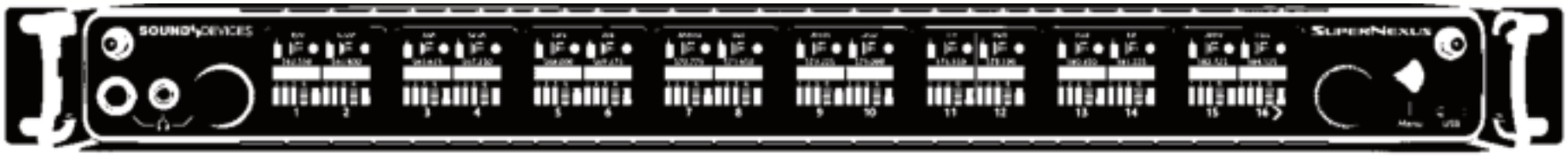
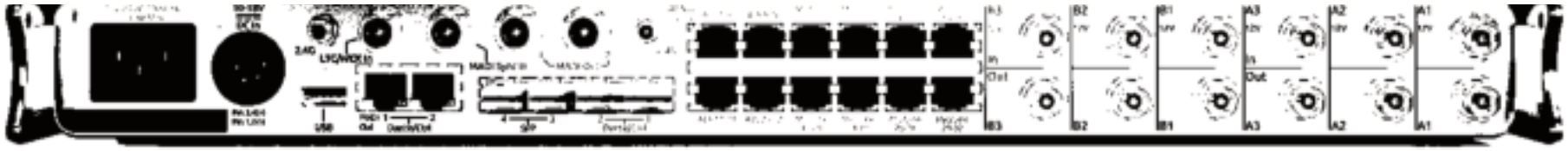
SOUND DEVICES

ASTRAL®





A20-SuperNexus

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

User Guide v1.00 (Draft 1)

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Welcome to the A20-SuperNexus

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.

Key Features

- 16-channel ultra-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.
- 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.
- 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 32 channels of MADI, Dante, AES, and analog mic/line outputs.
- Expansion port for connecting the A20-Opto-HMA or A20-Opto-ST 1RU expansion chassis (coming soon).
- 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 (coming soon).

SpectraBand

The A20-SuperNexus incorporates SpectraBand, a technology that enables the A20-SuperNexus to tune over a super wide range of 169-1525 MHz. Available tuning bands within this range vary by country.

For instance:

In the USA, the available frequency ranges are:

- 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, the available frequency ranges are:

- 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 frequency ranges are available for each country.

Filter Range

SpectraBand's 169-1525 MHz global range is divided into multiple tightly-filtered frequency ranges known as 'filter ranges'. The sharp attenuation at either end of the filter significantly reduces out of band interference resulting in excellent range and performance.

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.

SuperNexus includes three independent tuning bands, each tunable to any of the 24 MHz wide filter ranges, for a total of 72 MHz of simultaneously usable spectrum.

Digital Wireless Modulation

Long Range and Standard Modulation
The Astral wireless products offer two proprietary digital modulation schemes that provide unbeatable range, unrivaled audio quality, and very low latency. Long Range or Standard modulation can be selected on a per-receiver-channel basis. The modulation setting must match between the Astral transmitter and the A20-SuperNexus in order 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.

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. A A20-SuperNexus can pair with up to 64 NexLinked transmitters.

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.

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.

The product should not be exposed to dripping or splashing or be used near water (e.g. in a bathroom, a kitchen, wet basement or near a swimming pool etc…) Similarly, do not place objects containing liquids on this product as care should be taken to prevent objects and liquids from entering the product.

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: The product 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 product (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: The product should only be installed and used in accordance with the manufacturers operating instructions. Use only with a cart, stand, tripod, bracket or table specified by the manufacturer, or sold with the product. When a cart is used, use caution when moving the cart/product combination to avoid injury from tip-over.
HEADPHONES: The headphone outputs are capable of producing high sound level which may be harmful to your hearing. The use of lower impedance headphones/earpiece 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 so as 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 so as 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.

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 a number of 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.

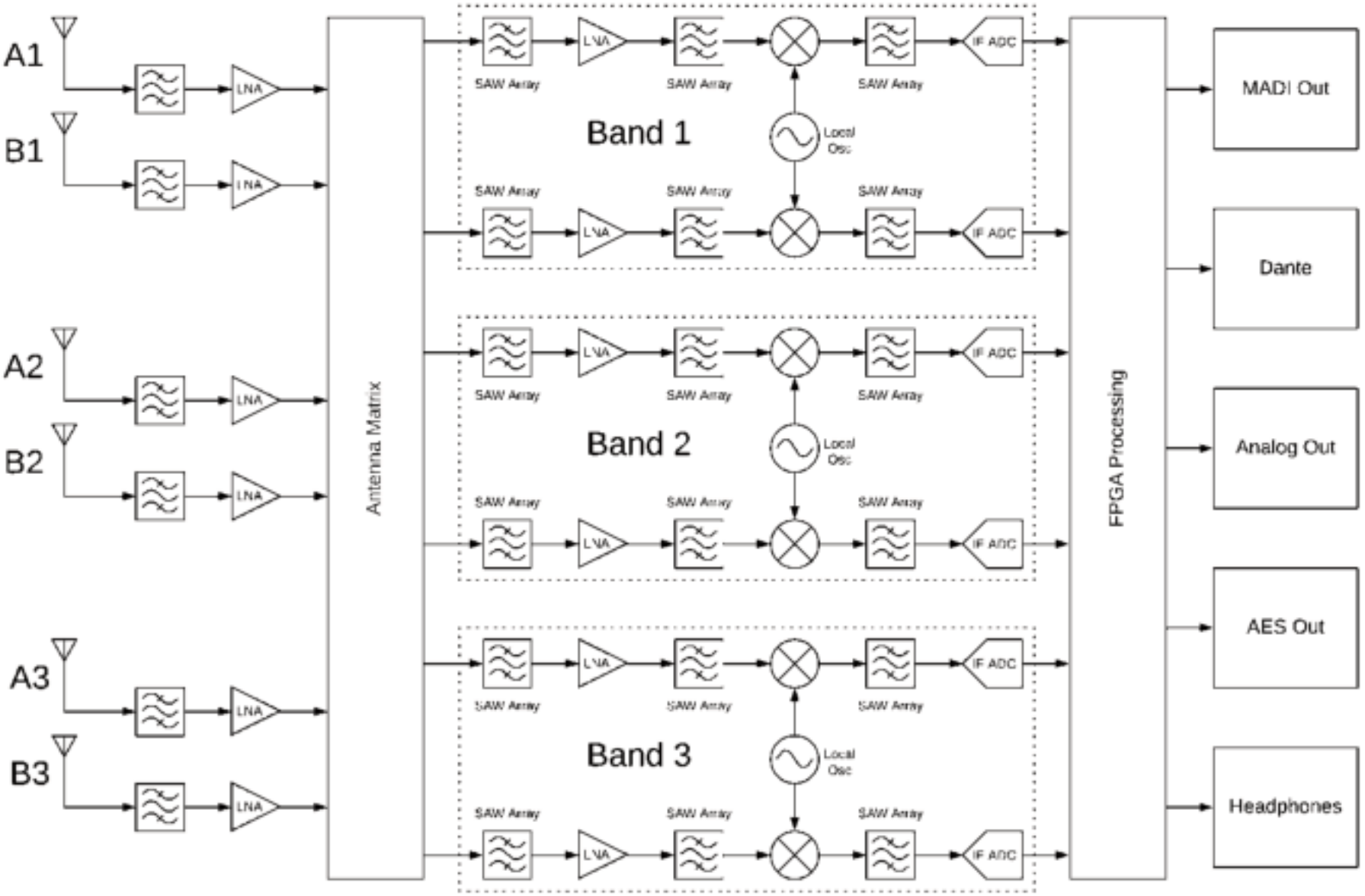
This is followed by yet another SAW filter array. This array further attenuates out-of-band signals, ensuring reliable reception, and greatly suppressing any image frequencies.

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.

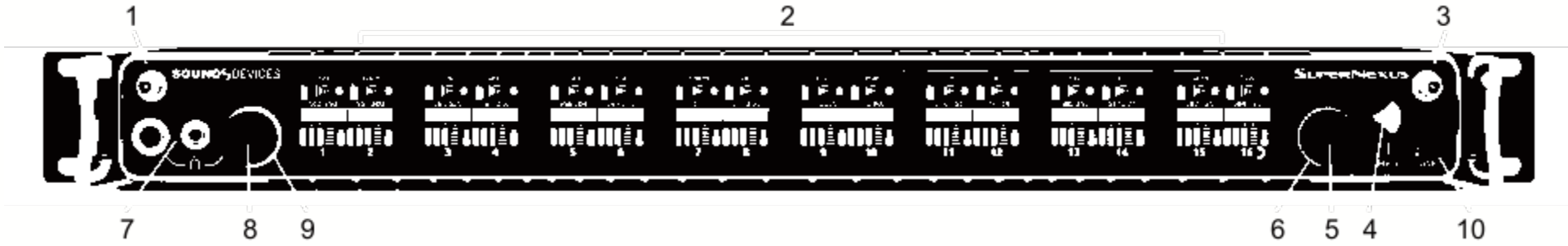
The real magic of the entire A20-SuperNexus happens within the Field-Programmable Gate Array (FPGA). An FPGA is essentially a giant custom, massively-parallel processor programmed in house. The FPGA can perform filtering, frequency conversion, and demodulation in the digital domain which far exceeds 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 actually works at the bit level, yielding exceptional range. The resultant audio signals are then fed out of the FPGA to the various audio outputs.

Block Diagram



Panel Views

FRONT PANEL



1 & 3: NexLink Antenna Inputs
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.

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.*

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 ¼” connector.

8: Headphone Knob

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

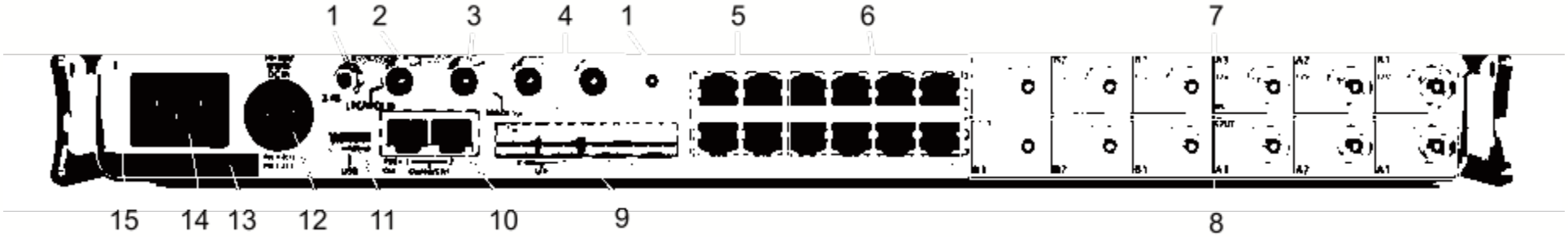
9: Headphone Knob Multicolor Ring LED

- 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).

REAR PANEL



1: NexLink Antenna Inputs

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.
Important: Only use the 2.4 GHz SMA-M antennas supplied with the A20-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 7.5 Watts (5V, 1.5A)

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.

BOTTOM PANEL

1: Expansion Port

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

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.

PoE+ Output
The optional A20-Outpost-NL NexLink extender (coming soon) 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.

Quick Start

- Connect AC and/or DC power, BNC 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.
- 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.

Navigating the A20-SuperNexus 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 a number of 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.

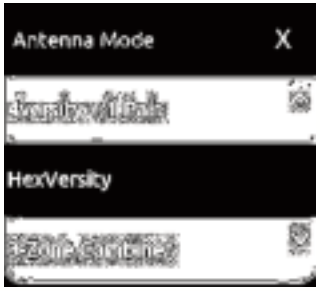
  Off

  On

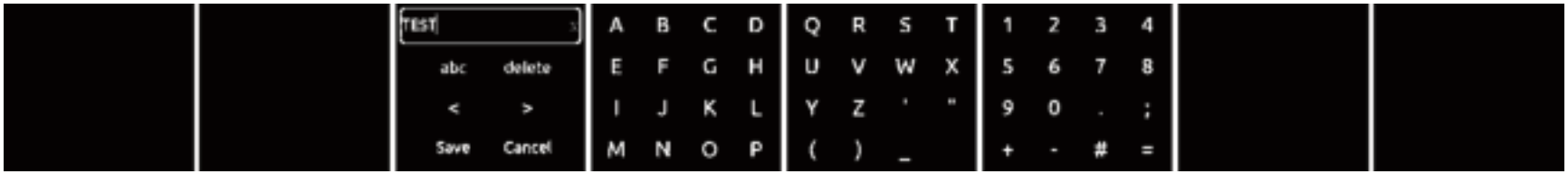
- **List Button:** Displays a list of items to choose from. There are two types of List Button as shown below, one with external label, one with internal label. The currently selected item or value is displayed inside the button.
  - Tap the list button to display a list of items to choose from
  - Scroll 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.



RX Views

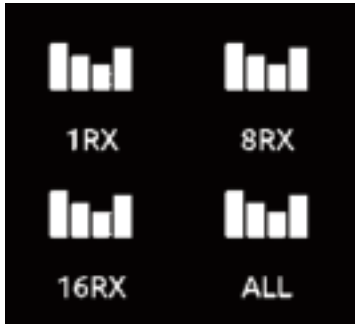
RX Views display real-time receiver channel data, transmitter signals, and status information across the eight OLED screens.
There are several types of RX View:

- 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

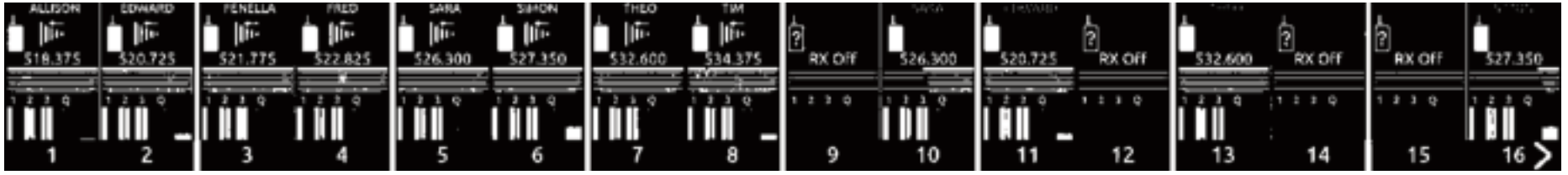
OLED 1 from the Main Menu



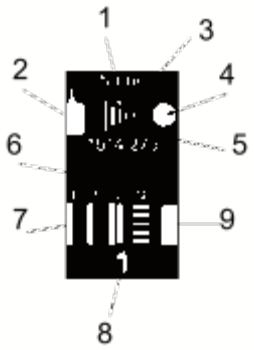
Upon power up, the A20-SuperNexus shows the last displayed RX View.

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.

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

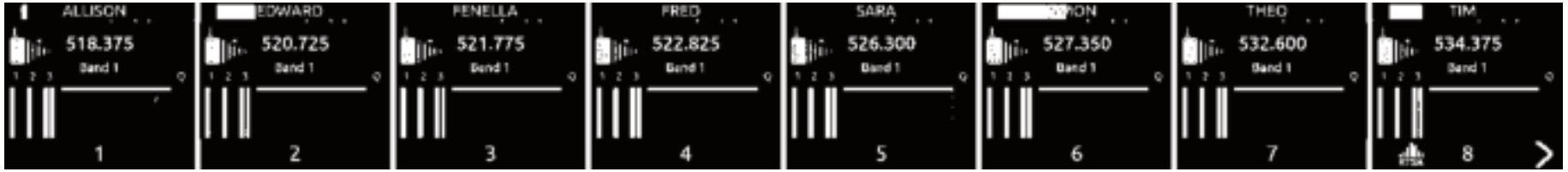
5. **RF Frequency:** Displays the receiver channel's assigned frequency.
    a. If an Astral transmitter has an active NexLink connection and NexLink Tuning Mode is set to 'Push', the transmitter will follow the assigned receiver channel frequency.
    b. Displays 'RX Off' when the receiver channel is Off.
    c. The frequency flashes red when there is a NexLink issue. Go to the 1RX View > Gear Menu > NexLink Status screen to troubleshoot 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. 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:

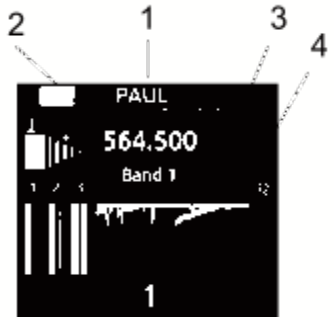
Antenna	Color
1A	Light blue
1B	Dark blue
2A	Light green
2B	Dark green
3A	Light orange
3B	Dark orange
X (A) [Combiner mode]	Light blue
X (B) [Combiner mode)	White

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.

8RX View

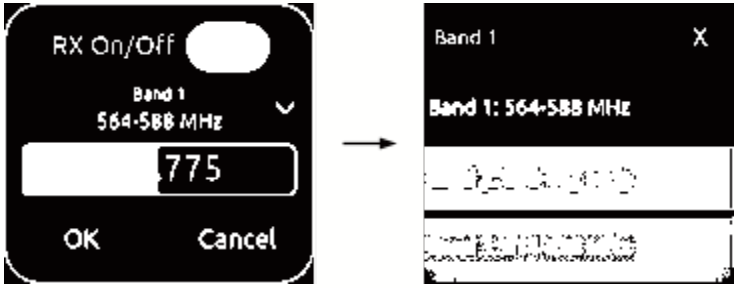


- Displays 8 receiver channels, one per screen.
- Tap the right arrow at the bottom of OLED 8 to bank to the next eight channels 9-16. In the channels 9-16 bank, tap the left arrow at the bottom of OLED 1 to bank to the previous eight channels 1-8.
- Tap any receiver channel OLED to display its 1RX View.
- 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 provided the NexLink menu > Nexlink Tuning Mode is set to 'Push'.

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 NexLink Tuning Mode is set to 'Push', 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. Alternatively, in the whole number frequency field (first field), rotate the Control knob fully anticlockwise to display 'RX Off'.

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

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.

1RX View

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

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:

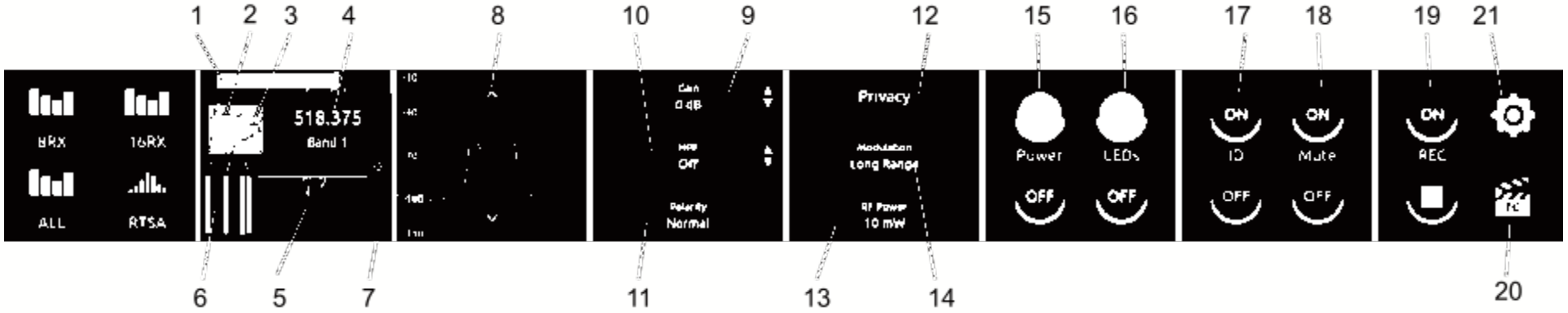
- The model of the transmitter feeding the channel (A20-TX, A20-Mini, or A10-TX)
- Whether the channel is sourced from one or multiple transmitters.
- Whether the channel is sourced from a NexLinked or non-NexLInked (e.g. A10-TX) transmitter.
- Whether the channel's Mode is set to RF Only, REC Only,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

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)*	

--	Channel sourced from an A10-TX or non-NexLink'd transmitter	
--	No transmitters are assigned to the channel Tap the TX List button to assign a transmitter.	

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



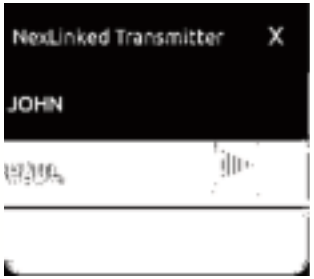
- Rotate the Control knob to navigate to next and previous 1RX views.
- Navigate to multi-RX Views or RTSA by tapping the icons in OLED 1
- OLED 3 displays the mini RTSA for the receiver channel's current frequency. It is approx 1 MHz wide and centered on the assigned frequency. Tap the mini RTSA to jump to the full RTSA for the band that the frequency falls within.

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. 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.
    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 on non-NexLinked Astral transmitter
    c. If NexLinked to an Astral transmitter, the name edits are pushed to the transmitter.
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

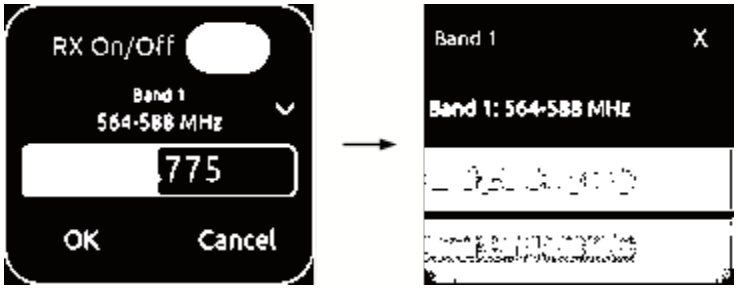
e. Flashing Red = Depleted (transmitter RF and audio is disabled)

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 active
   b. White = Transmitter is off and NexLink active
   c. 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).
   a. The frequency flashes red when there is a NexLink issue. Go to the 1RX View > Gear Menu > NexLink Status screen to troubleshoot the issue.
   b. Tap the frequency button to select a frequency within the current band.



   c. 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.
   d. To save power, turn off a receiver channel by setting the RX On/Off toggle to Off. Alternatively, in the whole number frequency field (first field), rotate the Control knob fully anticlockwise to display 'RX Off'.
   e. 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. 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 at this time - as such, channel audio is muted.*

13. **RF Power:** Sets a NexLinked Astral transmitter's RF power. Options are RF Off, 2 mW, 10 mW, 20 mW, 40 mW (depending on region).
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 Nexus in order for the transmitted signal to be received.
    If NexLinked to an Astral transmitter, the Modulation setting is automatically pushed to the transmitter unless *NexLink* > *NexLink Tuning Mode* is set to Manual.
15. **Power On/Off Buttons:** Tap to power on and off the transmitter and receiver channel.

16. **LEDs On/Off buttons:** Tap to enable or disable the Astral transmitter's LEDs.
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. **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.
20. **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 hold the synced timecode accurately for 4 hours after power down, then reset to zero.*

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

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).
c. **Auto-Power w/Lemo Connect:** Set to ON to have the Astral transmitter automatically power on when a source is connected.
d. **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.
e. **Allow Extra High RF Power:** Allows the selection of 40 mW for RF Power. 40 mW is unnecessary in all but the most extreme RF applications.
f. **A20 Battery Doubler Installed:** A20-Mini Only. When set to YES, the battery remaining % indicator adapts to the A20-BatteryDoubler's discharge characteristics in order to provide accurate readings.
g. **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.
h. **LED Mode:** A20-TX Only. Select from On, Front Only, or Top Only
i. **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.
j. **Gtr Input Impedance:** A20-TX with guitar cable connected only. Choose between 100k, 1M, or 10M Ohms.
k. **Battery Chemistry:** A20-TX Only. Selects chemistry type: NiMH, Alkaline, Lithium Primary or Li-ion, LiFePO4.
l. **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.
m. **Display Background:** A20-TX Only. Selects Light or Dark background color
n. **Display Orientation:** A20-TX Only. Select between Normal or Flipped.
o. **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.
p. **Restore TX Settings:** Sends a command to the Astral transmitter to restore its setting to factory defaults.
q. **Back … :** Tap Back to exit the Gear menu.
r. **Transmitter Information:** Displays the NexLinked transmitter's model, firmware version and serial number.

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

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. Frequency, Modulation, Privacy, Gain, HPF, and Polarity settings are applied to all assigned transmitters when NexLink Tuning Mode is set to Push.

***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 to make it easy to ensure only one transmitter is transmitting.*

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 NexLink'd to. Pair/Unpair & control an individual TX or group of TXs.
RF	Accesses Antenna Mode, Antenna Settings, Band Configuration, and RF History 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, RX channel metering
Network	Network-related settings for Dante and Control, RF Mirror Mode
NexLink	NexLink-related settings including A20-Outpost-NL (coming soon) 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, Global TX Settings, Plugins, Web App Password and more.

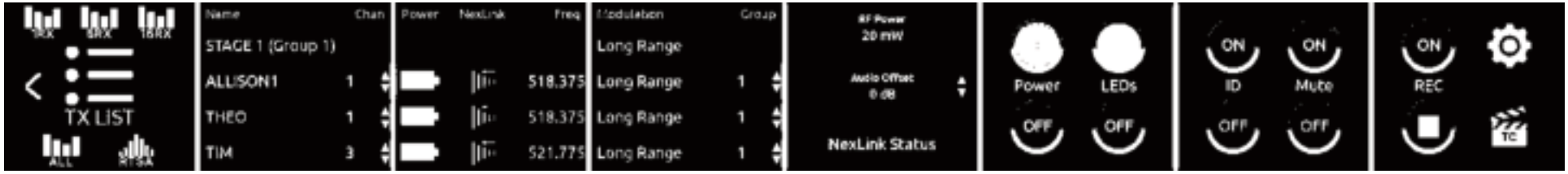
TX List

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 groups are available. When one or more transmitters are assigned to a group, that group is displayed at the top of the TX list.

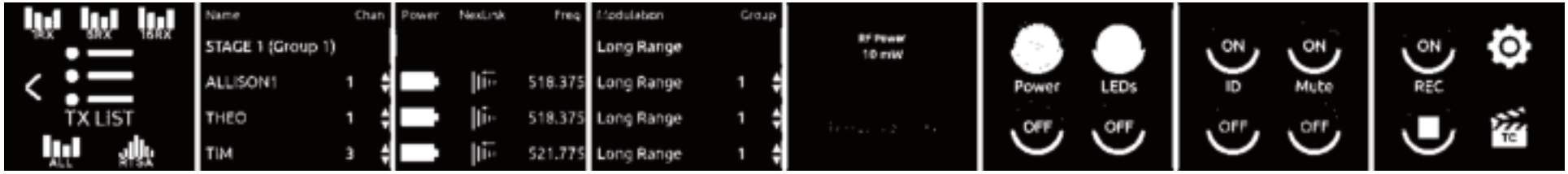
One or more Astral transmitters can be assigned to a single receiver channel. When the A20-SuperNexus is set to ‘Push’ mode (see System>NexLink Tuning Mode), all transmitters assigned to a receiver channel are sent that channel’s RX Frequency, Modulation, and Privacy settings. This makes it easy to quickly 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.*

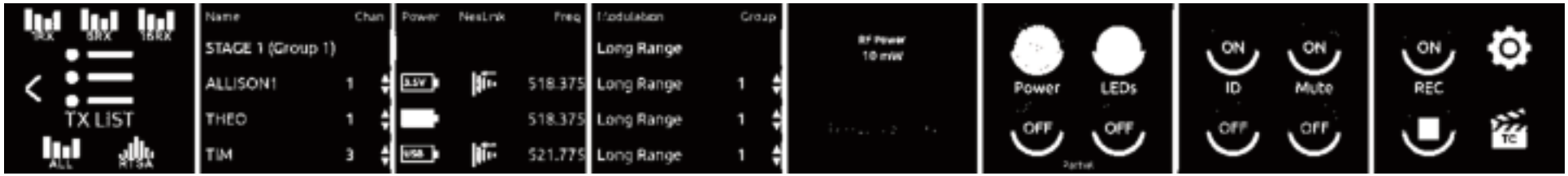
TX List with a transmitter row selected. Controls only apply to the selected transmitter. The Audio Offset button in OLED 5 is only available when more than 1 transmitter is assigned to the same receiver channel, in this case, channel 1.



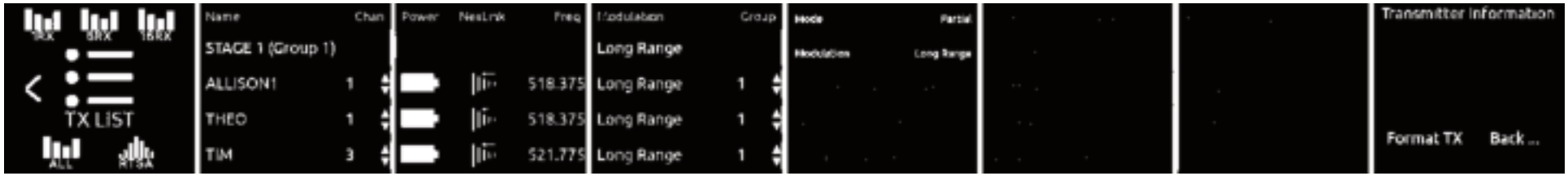
TX List with a Group Row selected. Controls apply to all transmitters assigned to that group.



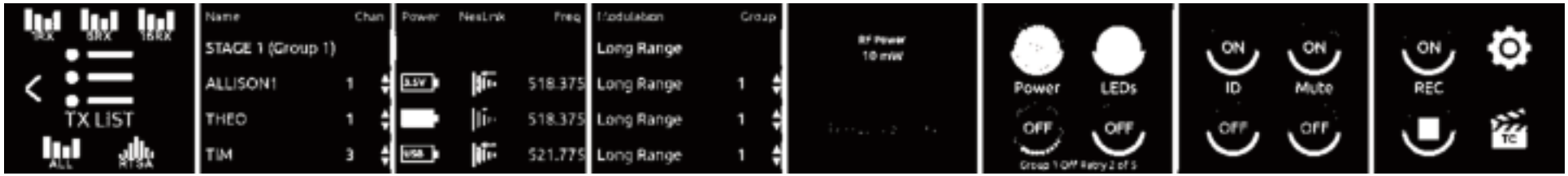
TX List with a Group Row selected showing ‘Partial’ status in OLED 6. The ‘Partial’ status indicates that at least one of the transmitters in the group is not in sync with the setting’s state.



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.



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’. This pairing is saved indefinitely over power cycles, and typically only has to 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.

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 pairing.
3. Wait for several seconds while the Astral transmitter pairs to the A20-SuperNexus. The Astral transmitter will appear in the list once paired.
4. Disconnect the USB cable between the Astral transmitter and the A20-SuperNexus.

Pairing automatically assigns the transmitter to the next available receiver channel number. 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’ TX List.*
Tip: *Use a USB Hub (or PowerStation-8M) to pair multiple Astral transmitters simultaneously*

Unpairing Transmitters from the A20-SuperNexus

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.

TX List Detailed 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.
- **Chan**: The receiver channel number to which the transmitter is assigned. Tap to assign. Unassign by setting to ‘-’.

- **Power**: 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 or Long Range.
- **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.
- **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. Hidden when a group is highlighted.
- **Power On/Off:** Tap to power on/off a transmitter or group of transmitters.
- **LEDs On/Off:** Tap to turn LEDs on or off for a transmitter or group of transmitters.
- **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.
- **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.

Gear Menu

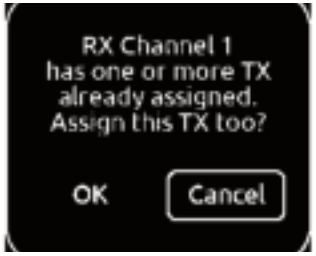
a. **Mode:** Set transmitter mode. Choose between RF Only, REC Only, or REC+RF (non-US models only).
b. **Modulation:** Sets a transmitter's and associated channel's RF modulation.
c. **Auto-Power w/Lemo Connect:** Set to ON to have the Astral transmitter automatically power on when an audio source is connected.
d. **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.
e. **Allow Extra High RF Power:** Allows the selection of 40 mW for RF Power. Rarely required.
f. **A20 Battery Doubler Installed:** A20-Mini Only. When set to YES, the battery remaining % indicator adapts to the A20-BatteryDoubler's discharge characteristics in order to provide accurate readings.
g. **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.
h. **LED Mode:** A20-TX Only. Select from On, Front Only, or Top Only

i. **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)
j. **Gtr Input Impedance:** A20-TX Only. Select guitar amp input impedance from 100K, 1M, or 10M ohm.
k. **Battery Chemistry:** A20-TX Only. Selects chemistry type: NiMH, Alkaline, Lithium Primary or Li-ion, LiFePO4.
l. **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.
m. **Display Background:** A20-TX Only. Selects Light or Dark background color
n. **Display Orientation:** A20-TX Only. Select between Normal or Flipped.
o. **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.
p. **Restore TX:** Sends a command to the Astral transmitter to restore its setting to factory defaults.
q. **Unpair:** Tap to unpair the transmitter from the A20-SuperNexus.
r. **Back …** Returns to previous OLED screens 5-8.
s. **Transmitter Information:** Displays the NexLinked transmitter's model, firmware version and serial number.

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 assigned to that receiver channel too. Click OK to assign.

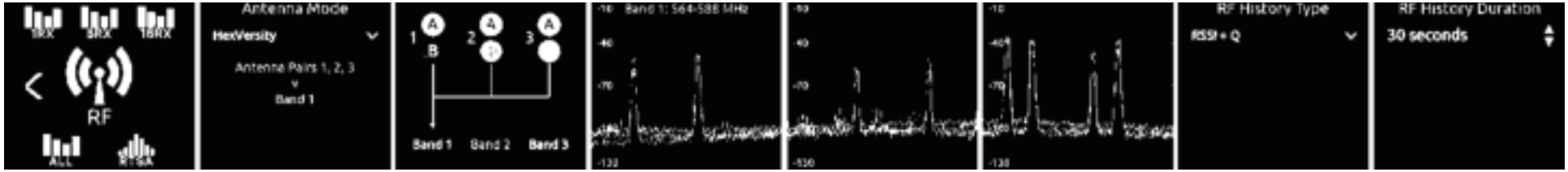


    c. If you are only working with a single transmitter per receiver channel, you can select that single transmitter directly from that channel's 1RX View. In the 1RX View, tap the NexLink Icon to display the 'NexLinked Transmitter' List from which you can select an Astral transmitter.

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.*

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.



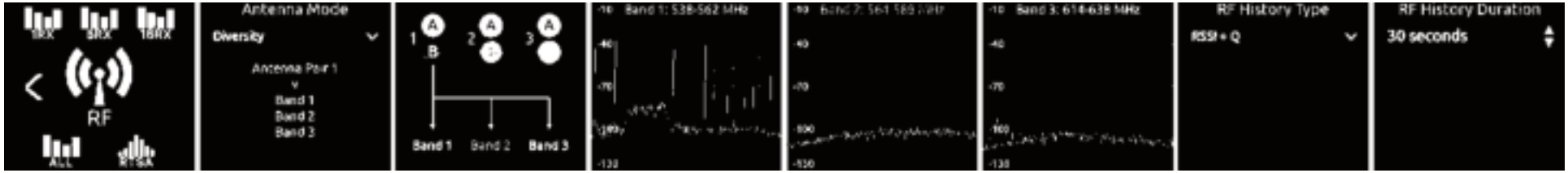
The A20-SuperNexus includes three independent bands each tunable to anywhere within SpectraBand's 169 to 1525 MHz frequency range, making it easy to find clean, usable spectrum. Each of these three bands are fed from user-selectable 'brick wall' filters (mostly 24 MHz wide) providing a total of 72 MHz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

Antenna Modes

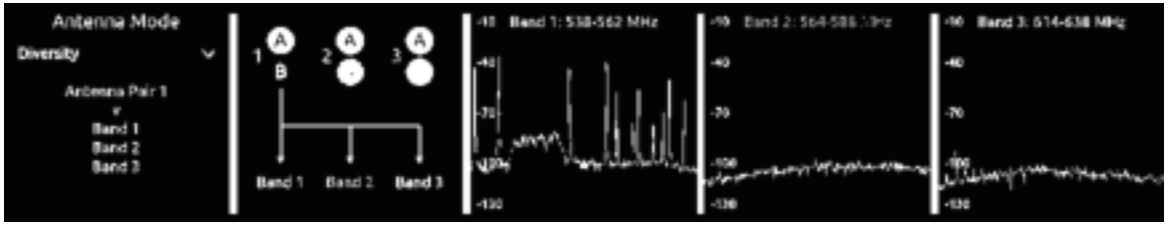
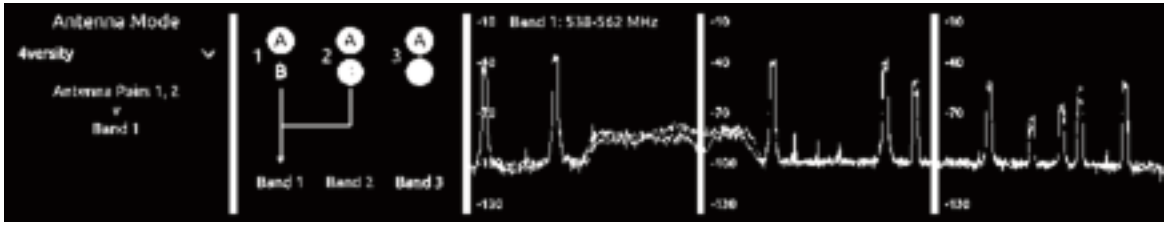
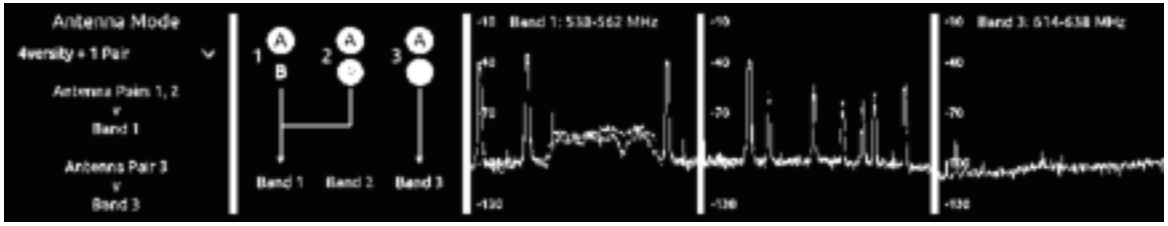
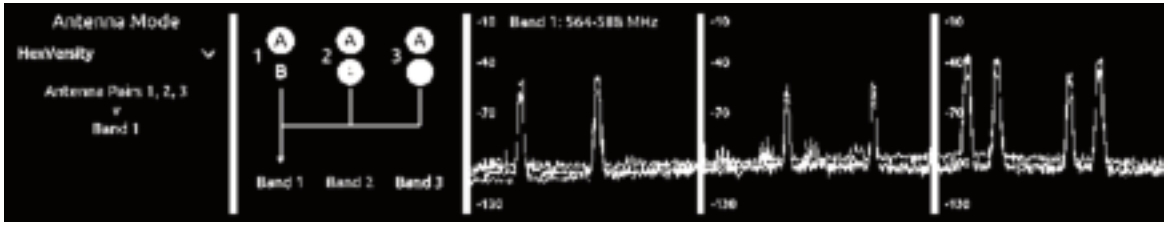


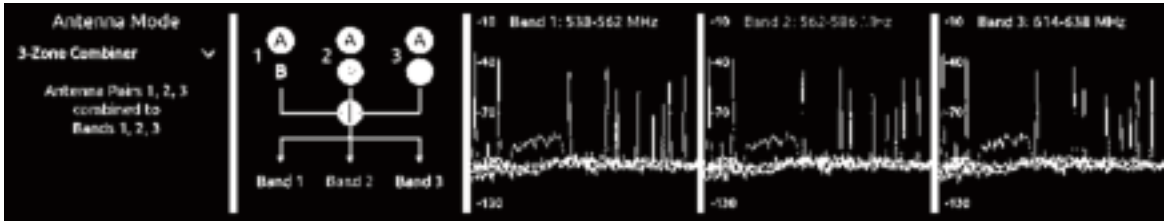
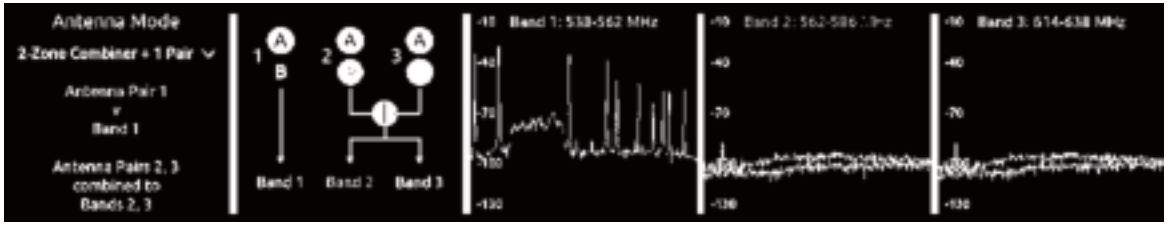
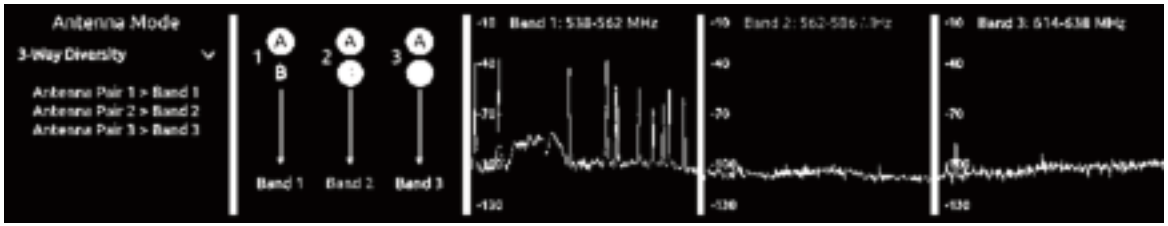
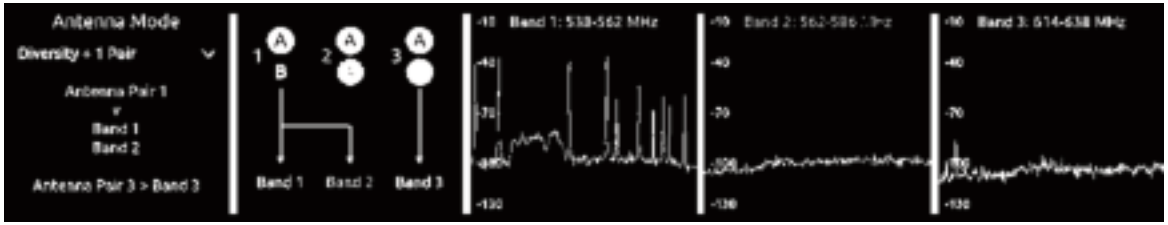
Select one of the 8 antenna modes (antenna input configurations) by tapping Antenna Mode in OLED2. A textual description and antenna routing graphic for the currently selected Antenna Mode are displayed in OLED's 2 and 3 respectively. The antenna routing graphic displays how antenna input pairs 1, 2,and 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 actually 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	Antenna Pair 1 -> All three Tuning Bands. Antenna Pairs 2 and 3 are disabled. 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 **Typical Application:** Normal diversity antenna deployments where two antennas can have the appropriate RF bandwidth to accommodate all selected Tuning Bands and cover the required area.	
4Versity	Antenna Pairs 1 and 2 -> Tuning Band 1. Tuning Band 2 and Band 3 are disabled. Antenna Pair 3 is disabled. OLED 4-6 = RTSA for Band 1. Tap to expand RTSA **Typical Application:** Deployments requiring more robust coverage and/or a larger coverage area. Selected antennas must have appropriate bandwidth to accommodate the selected Tuning Bands.	
4versity+ 1 pair	Antenna Pairs 1 and 2 -> Tuning Band 1. Tuning Band 2 is disabled. Antenna Pair 3 -> Tuning Band 3. OLED 4-5 = RTSA for Band 1. Tap to expand RTSA OLED 6 = RTSA for Band 3. Tap to expand RTSA **Typical Application:** 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.	
HexVersity	All Three Antenna Pairs -> Tuning Band 1. Band 2 and Band 3 are disabled. OLED 4-6 = RTSA for Band 1. Tap to expand RTSA **Typical Application:** 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.	

3-Zone Combiner (Advanced users only)	Antenna Pairs 1, 2, and 3 are passively combined -> Tuning Bands 1, 2, and 3. 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 **Typical Application:** Deployments requiring three separate, non-overlapping zones of coverage. Selected antennas must have appropriate bandwidth to accommodate the selected Tuning Bands.	
2-Zone Combiner +1 Pair (Advanced users only)	Antenna Pair 1 -> Tuning Band 1. Antenna Pairs 2 and 3 are passively combined -> Tuning Bands 2 and 3. 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 **Typical Application:** 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.	
3-way Diversity	Antenna Pair 1 -> Tuning Band 1 Antenna Pair 2 -> Tuning Band 2 Antenna Pair 3 -> Tuning Band 3 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 **Typical Application:** Hybrid deployments where each Tuning Band requires its own antenna pair. For example VHF, UHF, and STL band antenna pairs.	
Diversity + 1 Pair	Antenna Pair 1 -> Tuning Bands 1 and 2 Antenna Pair 3 -> Tuning Band 3. 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 **Typical Application:** 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.	

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
- **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 Wisycom 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.
- **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. [WB (Selected in Freq field: 410-810, 410-700, 410-600, 470-810, 470-700, 470-600, 510-810, 510-700, 510-600); NB (940-960MHz, freq is fixed at 940-960 and cannot be changed).
- **LFA Filter Freq:** Sets the filter freq of Antenna A or B. [When Filter is set to NB, Frequency is fixed at 940-960 and cannot be changed. When Filter is set to WB, Freq can be set to 410-810, 410- 700, 410-600, 470-810, 470-700, 470-600, 510-810, 510-700, 510- 600. When Filter is set to Tunable, Filter Frequency can be adjusted in 40 MHz blocks from 410-450 to 690-730 in 1 MHz steps.]
- **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 Wisycom LFA- B-F1.

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 (orange) and RF input overload (red) are also shown in this mode.

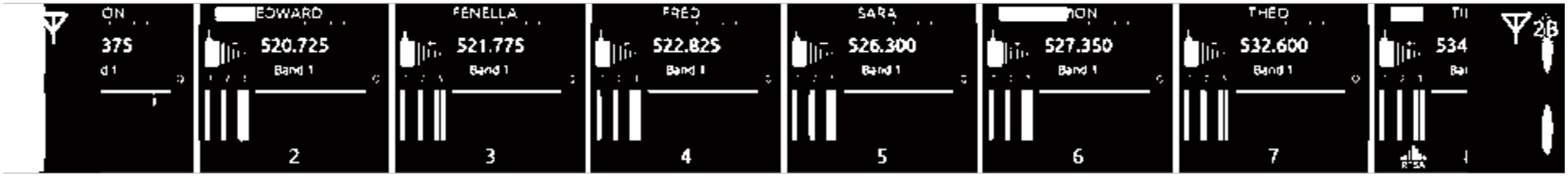
Antenna RF Overload Indication

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

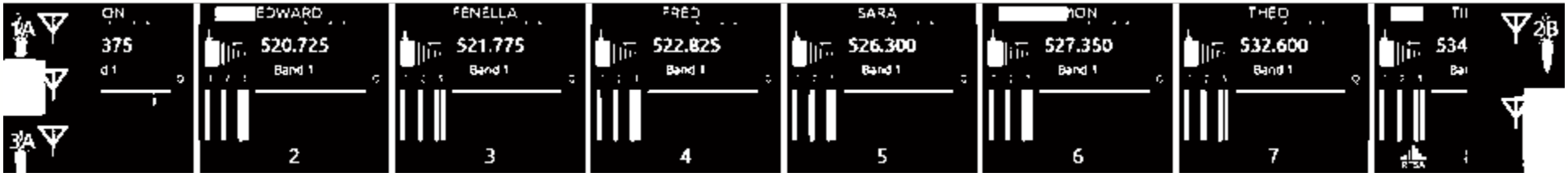
- Red = Overload
- Orange = Approaching overload
- Left indicator (in OLED 1) = Overload status for antennas 1A, 2A, and 3A
- Right indicator (in OLED 8) = Overload status for antennas 1B, 2B, and 3B
- The red and orange indicators are held for a minimum of 2 seconds. Tap the indicator to manually clear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

Some examples of indicators:

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.

RTSA (Real Time Spectrum Analyzer)

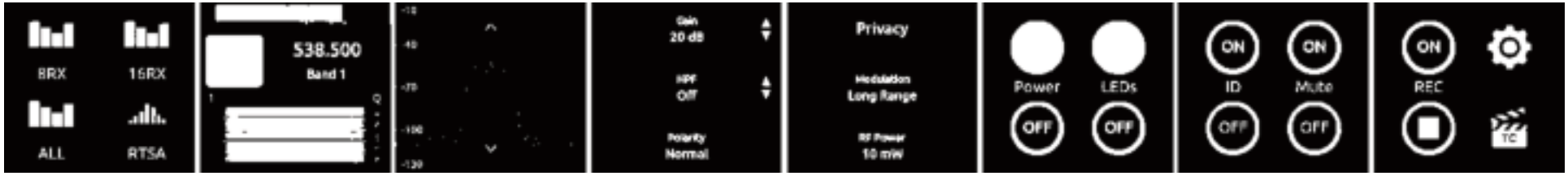
The RTSA is a real time, visual spectrum analysis tool for assisting in frequency coordination and selection of clean RF frequencies. The RTSA can operate over the entire SpectraBand range (169 MHz to 1525 MHz). The RTSA trace represents RF signal level (in dBm) on the vertical axis and RF frequency 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

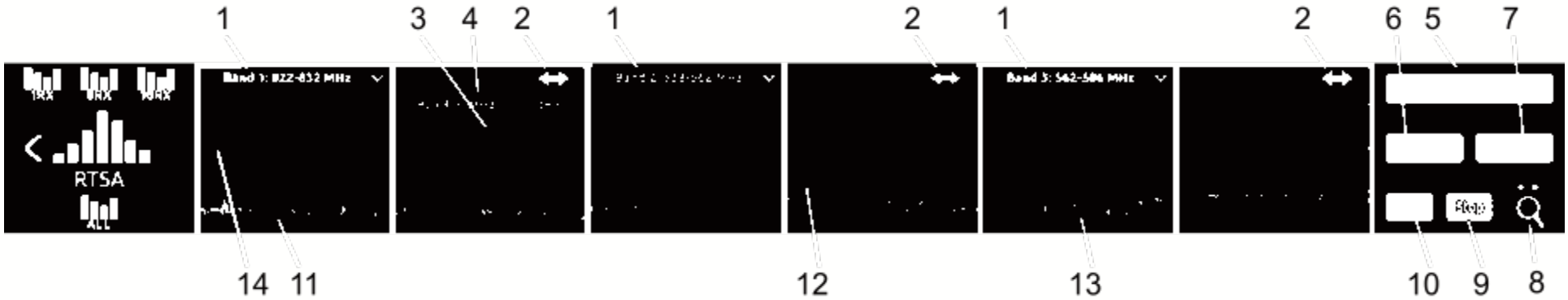
It is best practice to first use the Scan tool to find the cleanest band, then use the RTSA or AutoAssign to find the cleanest frequencies within that band. Once clean frequencies are found they can be assigned to receiver channels and their associated NexLinked transmitters directly from the RTSA or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

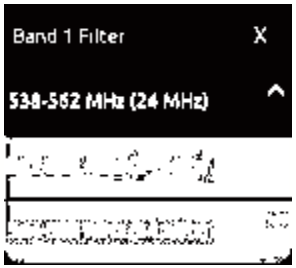
Multi-RTSA View



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 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:
   a) Quickly comparing the RF performance of assigned frequency groups as you switch between Bands.
   b) Pre-configuring alternate bands with pre-assigned frequencies to prepare for unforeseen changes in the RF environment.

   Note: Each band's assigned frequency cache is 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 **--> <--** 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:
   a) Assign the blue frequency marker’s frequency to any receiver channel.
   b) 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.
   a. Antenna Pair 1
   b. Antenna Pair 2
   c. Antenna Pair 3
   d. 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]"

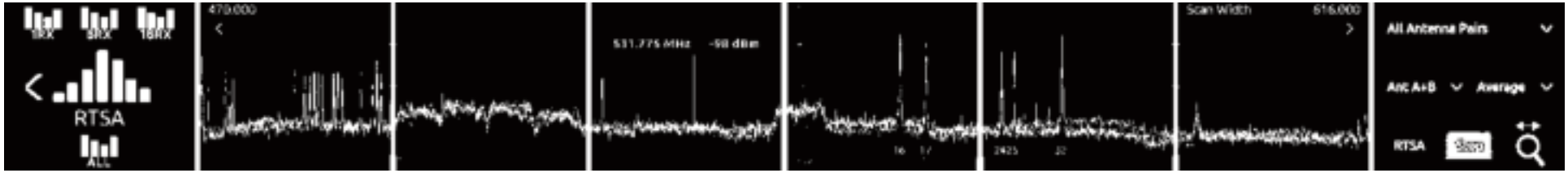
11. **NexLink Channel Indicator:** Indicates the frequency and channel number of a NexLinked receiver channel. The channel number and frequency portion of the trace that is associated with that number, is highlighted orange. Tap the orange number to jump directly to that channel's 1RX View.

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 dB.

13. **Trace:** The real time trace of the received RF spectrum.

14. **Restricted Frequency Band:** Vertical gray region indicates unselectable restricted frequencies.

Scan Mode



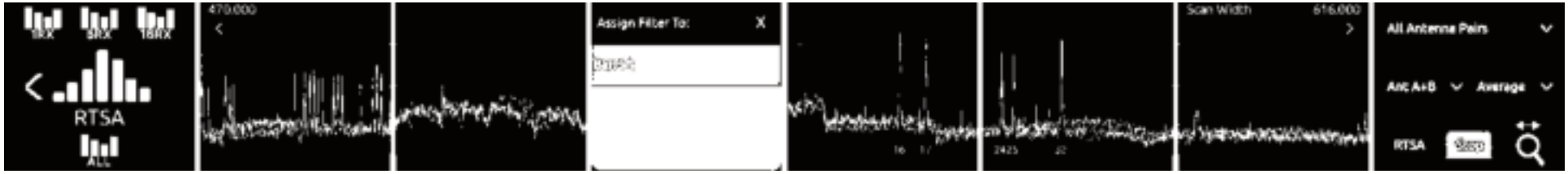
Use Scan mode to view the whole or any section of the 169 MHz - 1525 MHz spectrum. Scan mode makes it quick and easy to find and assign clean Band Filters for each of the three Bands. Access Scan mode by tapping the Scan button in OLED 8 of the RTSA View. The complete scan trace is refreshed every few 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 visa versa.*

The scan trace width and start/end points can be adjusted in a number of 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 counter-clockwise 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.

- When entering Scan mode, the last selected range is shown.
- 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.

AutoAssign

Use AutoAssign to find and automatically assign multiple clean frequencies to active channels. An active channel is 1) a NexLinked channel or 2) a non-NexLinked channel that has a frequency assigned). If NexLink menu > NexLink Tuning Mode is set to ‘Push to transmitter’, clean frequencies are automatically sent to NexLinked transmitters.

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

- Bands 1, 2, and 3 are active (e.g. Diversity, 3-Zone Combiner, or 3-way Diversity Antenna Modes)
- 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 currently assigned to Band 'n'. Assign channels to Band 'n' from the 1RX or 8RX view frequency setting. OK"

When this occurs, select the channels you want to AutoAssign within the required band from the 1RX or 8RX view; tap the Frequency button, tap the Band ‘n’ button and select the required band. Only bands that are active for the current Antenna Mode are available for selection.

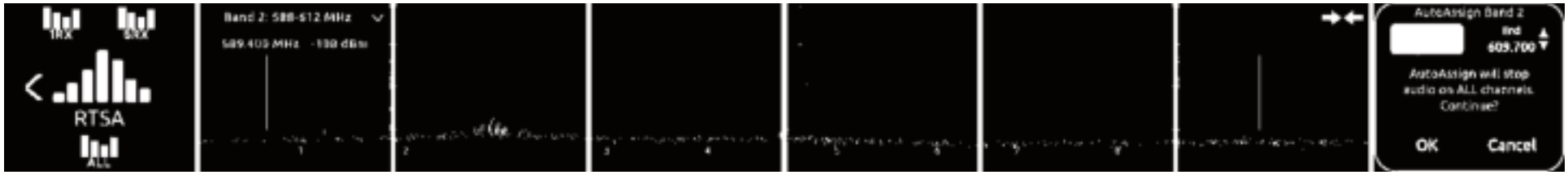
Alternatively, you can assign channels to a band by accessing the band’s RTSA and manually assigning channels. Once completed, perform AutoAssign.

The AutoAssigning 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 All 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. From the multi-band RTSA, tap OK to start the AutoAssign process. OLED 8 will show ‘Analyzing’. Once complete, “N out of N active channels successfully assigned. OK” is displayed.
3. 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 screen 8, 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 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.)*

4. At the start of the process, AutoAssign will stop audio on ALL channels.
5. After a number of seconds, a popup message appears showing the number of frequencies that have been assigned to channels. If clean frequencies are not found for all the active channels, the popup asks whether to assign the remaining channels to less quiet frequencies. Select OK to continue. If clean frequencies are not found for those remaining active channels after the second attempt, a third and final attempt is offered.

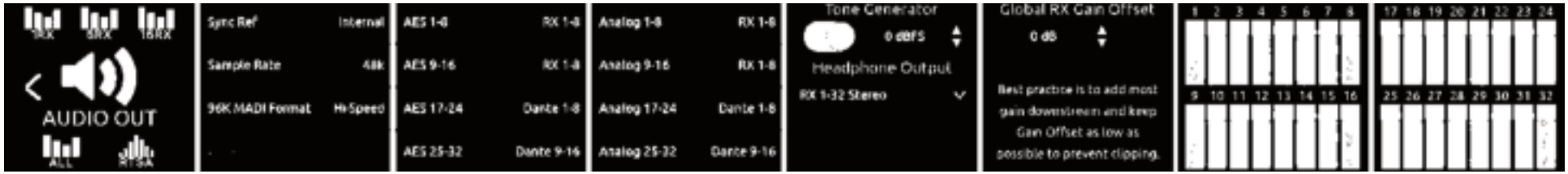
AutoAssign can also be instigated from the RTSA View.

1. Press the Control knob to display the ‘Assign Frequency To:’ list.
2. Select ‘Auto Assign All’.
    Note: Channels are not necessarily assigned in numerical order from lowest to highest frequency.

Audio Outputs

The A20-SuperNexus delivers its multichannel receiver audio via analog, AES, Dante, and MADI outputs. It can also be set up to convert incoming Dante audio to analog and/or AES outputs. Additional Optocore, MADI, AES, and analog outputs are available when the optional A20-Opto interface (coming soon) is docked to the A20-SuperNexus. All Audio and Sync settings are configured from the Audio Menu.

SuperNexus, no A20-Opto connected



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

- Internal
- BNC In (Word Clock or LTC). The A20-SuperNexus auto-detects whether the incoming signal is wordclock or timecode
- Dante In
- MADI In
- MADI In (96k SMUX)
- Optocore In (when A20-Opto is connected; A20-Opto interface coming soon)

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 In	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 96k SMUX MADI clock
Optocore In	Determined by the Optocore In sample rate. Optocore is only available when the A20-Opto (coming soon) 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.

Sample Rate

- The sample rate of the AES, MADI, and Dante digital outputs is determined by the Sample rate and Sync Reference settings.
- The Nexus 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.

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]

Dante Outputs

The A20-SuperNexus Dante Outputs (Dante transmit channels) are hardwired to the receiver channels i.e. RX1 -> Dante Out 1, RX2 -> Dante Out 2, RX3 -> Dante Out 3 etc.
SuperNexus's Dante transmit channels are named SuperNexus_Tx1, SuperNexus_Tx2, SuperNexus_Tx3 etc.
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.

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 in order to provide a common ground for the twisted pairs. The AES outputs can be sourced from A20-SuperNexus receiver channels or Dante inputs in blocks of 8 channels.

Each block of 8 AES3 outputs can be sourced from:

- RX 1-8
- RX 9-16
- RX 17-24 (requires 1 expansion license)
- RX 25-32 (requires 2 expansion licenses)
- Dante In 1-8
- Dante In 9-16
- Dante In 17-24
- Dante In 25-32

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 in order 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 receiver channels 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:

- RX 1-8
- RX 9-16
- RX 17-24 (requires 1 expansion license)
- RX 25-32 (requires 2 expansion licenses)
- Dante In 1-8
- Dante In 9-16
- Dante In 17-24
- Dante In 25-32

MADI Outputs
The A20-SuperNexus has 2x MADI outputs on 2x BNC connectors. Both MADI Outputs are hardwired to receiver channels i.e. RX1 -> MADI Out 1, RX2 -> MADI Out 2, RX3 -> MADI Out 3 …. RX32 -> MADI Out 32. MADI Out 2 duplicates MADI Out 1.
For 96 kHz applications, the MADI outputs can be configured as Hi-Speed or SMUX 96k MADI format.
The number of MADI output channels depends on how many expansion licenses are installed: 16ch when no license is installed, 24ch when 1 expansion license is installed, and 32ch when 2 expansion licenses are installed.

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.

Tone Generator
Enable the Tone Generator to send tone at a specific level to all audio outputs. The tone level can be adjusted from -20 to 0 dBFS. When the Tone toggle is enabled, a popup appears confirming whether to turn on the tone or not. Tap Yes or No.

Global RX Gain Offset
Apply a global audio gain offset to all RX channels. 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 Gain Offset as low as possible to prevent clipping. Audio meters for all RX channels are displayed in OLED screens 7 and 8 to help set the gain offset.

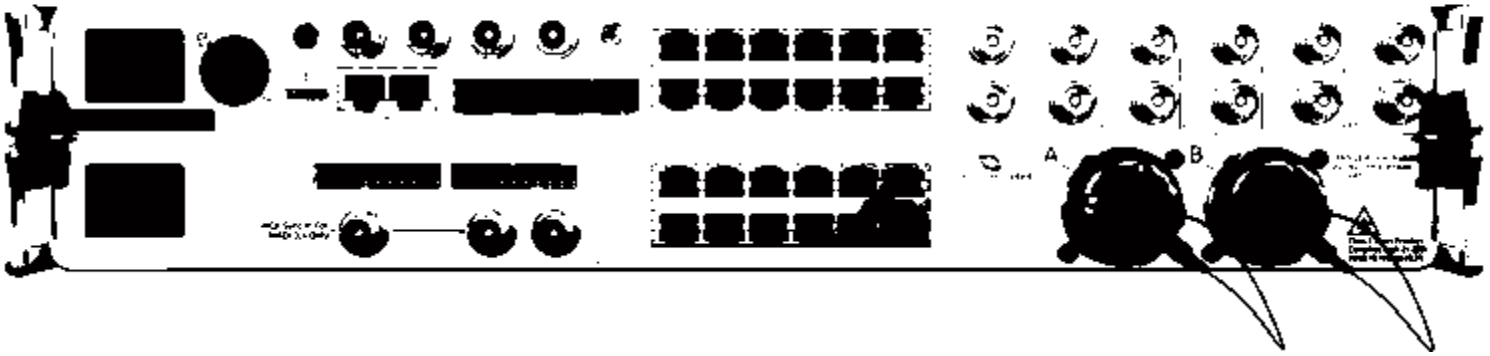
A20-Opto (Coming Soon)

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 audio output channels are hardwired to receiver channels i.e. RX1 -> Optocore Out 1, RX2 -> Optocore Out 2, RX3 -> Optocore Out 3 etc.

The A20-Opto has 2x MADI outputs on 2x BNC connectors. Both MADI Outputs are hardwired to receiver channels i.e. RX1 -> MADI Out 1, RX2 -> MADI Out 2, RX3 -> MADI Out 3 etc.
For 96 kHz applications, the MADI outputs can be configured as Hi-Speed or SMUX 96k MADI format. The number of MADI output channels depends on how many expansion licenses are installed: 16ch when no license is installed, 24ch when 1 expansion license is installed, and 32ch when 2 expansion licenses are installed. 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

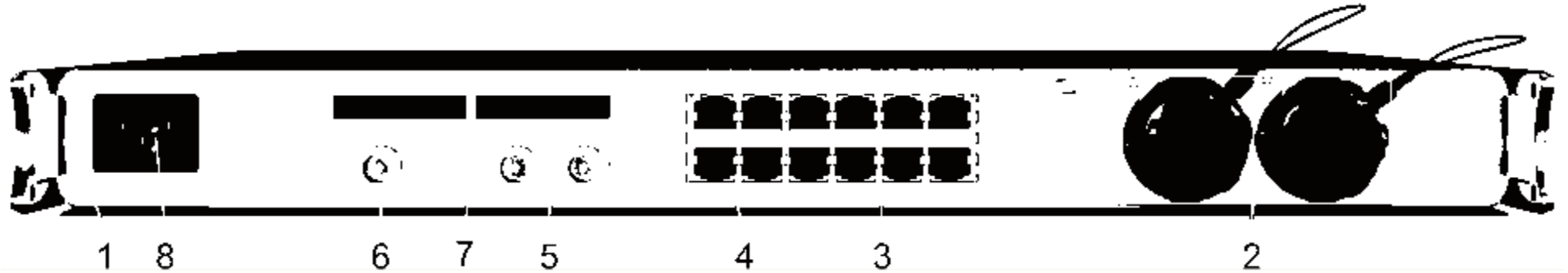
Picture shows the rear panel of the A20-Opto-HMA



Key Features

- Adds 2x native Optocore audio loops for outputting up to 32 RX 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.
- 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.

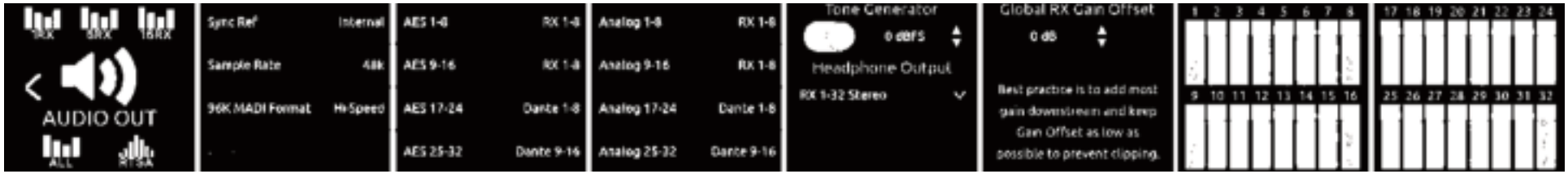
6: WCK Sync Input
BNC for connecting a Wordclock sync reference for the MADI Out 3 and 4 digital outputs.

7: GPIO
16 user configurable GPIO ports

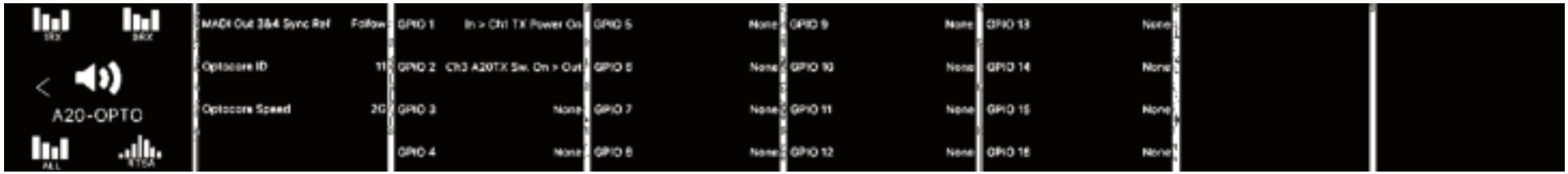
8: AC Power Input
100-240V, 200W max. If A20-SuperNexus's AC power supply fails, the A20-Opto's AC power input will power both the A20-Opto and A20-SuperNexus.

A20-Opto Setup

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.



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 SSRC'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 SSRC'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.

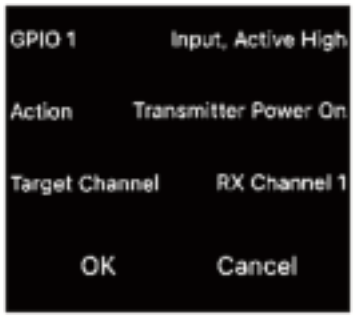
Note: If the sync reference results in the A20-Opto running at 96 kHz, the A20-Opto MADI out format is determined by the '96k MADI Format' setting on the A20-SuperNexus.

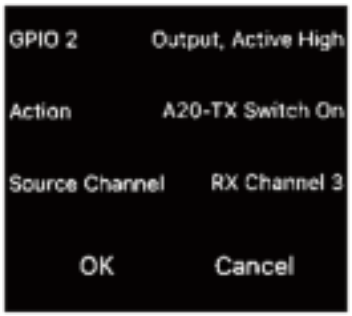
Optocore ID
Sets the Optocore ID. Choose from 11 to 24.

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

GPIO 1, GPIO 2 … GPIO 16
Select which A20-SuperNexus function is actioned when a GPIO input is triggered.
Select which A20-SuperNexus action triggers a GPIO output. 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 ‘n’:
Lists the following voltage triggering options:

- Input, Active High (activates action when pin transitions from low to high)
- Input, Active Low (activates action when pin transitions from high to low)
- Input, Active High/Low (activates action when pin transitions from low to high and deactivates action when transitions from high to low)
- Output, Active High/Low (Output goes high when action activates and goes low when action deactivates).
- Output, Pulse (Voltage goes high for 1 second)
- None (default)

Action:

- 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 Action button lists the options that can be set to trigger a GPO when they are active.

GPI Action Options	**GPO Action Options**
Transmitter Power On Transmitter Power Off Transmitter RF Power On Transmitter RF Power Off Transmitter Mute On Transmitter Mute Off Transmitter Record On Transmitter Record Off Transmitter ID On Transmitter ID Off None (default)	A20-TX Switch On A20-TX Switch Off Transmitter Power On Transmitter Power Off Transmitter Record On Transmitter Record Off Transmitter Mute On Transmitter Mute Off None

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) actions affect the GPO.

GPI Target Channel Options	GPO Source Channel Options
RX Channel 1 -> RX Channel 16 (1-32 with 2x expansion license installed) All Channels Group 1 -> Group 8 transmitter channels None (Default)	RX Channel 1 -> RX Channel 16 (1-32 with 2x expansion license installed) Any Channel None (Default)

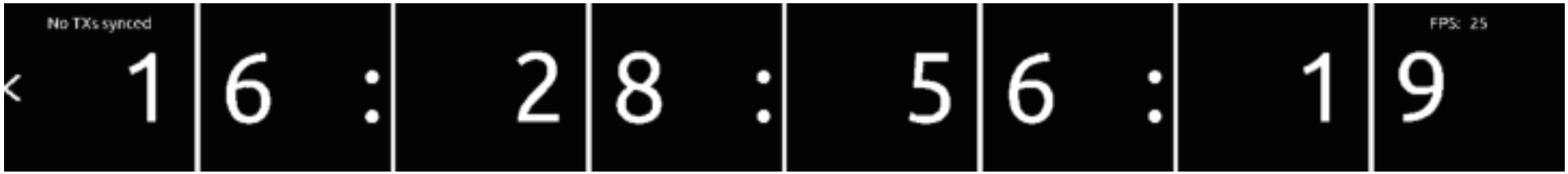
Timecode

With NexLink, the A20-SuperNexus is able to 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.

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.

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.

Network Menu

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

Each of the ports 1-4 can be individually configured for Dante, Control, or Dante + Control.

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

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]

- ***Note:*** *Changing the name requires that either the A20-SuperNexus is rebooted or Dante is restarted using the 'Restart Dante' button.*

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.

- 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, the Edit button is accessible. Tap the Edit button to edit the static IP address, subnet mask and gateway fields. Tapping each field brings up the virtual keyboard. Hit Set to apply the settings. If IP settings pertaining to Dante are changed, the IP Address, Subnet Mask, and Gateway values in OLED 4 are grayed out indicating that either a reboot of A20-SuperNexus or Restart Dante using the 'Restart Dante' button are required for the new settings to take effect.

Port Configuration
Each of the four ports have the following options:

- Dante
- Control
- Dante + Control

Restart Dante, Clear Dante Settings, Dante Status
When Dante settings (SuperNexus Name, Port Configuration, IP settings) are reconfigured, either reboot A20-SuperNexus or tap the Restart Dante 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.

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 Tuning Mode
- RX channel settings: Bands 1-3, Frequencies, Modulation, Privacy, Gain, HPF, and Polarity
- Global RX Gain Offset

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.

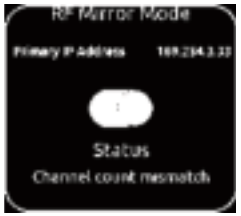
The software version, country, and number of RX channels (based on installed expansion licenses) must be identical between the Primary and Backup units before mirroring can be enabled.

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 Control IP address of the Primary unit in the Primary IP Address box in OLED 6.
4. Tap the Backup unit's RF Mirror Mode toggle switch in OLED 6 to enable Mirror Mode. The OLED 6 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. OLED 6 toggle switch is off.
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 Gain Offset). 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.

Example: OLED 6 Status field showing 'Channel count mismatch' and yellow border



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". The following settings are mirrored:

   - TX List
   - Antenna Mode
   - NexLink Tuning Mode
   - RX channel settings: Bands 1-3, Frequencies, Modulation, Privacy, Gain, HPF, and Polarity
   - Global RX Gain Offset

   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'.

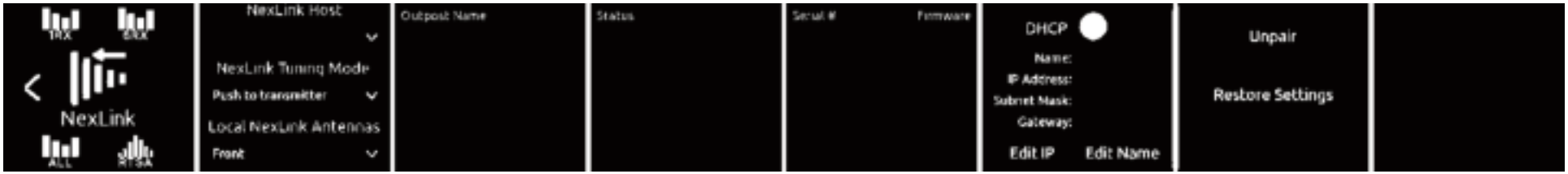
Disabling Mirror Mode

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.

NexLink Menu

Tap the NexLink Menu Icon in the Main menu to access NexLink settings and the A20-Outpost-NL list.

Note: The A20-Outpost-NL NexLink extender accessory is coming soon.



NexLink Host
SuperNexus can wirelessly control and monitor Astral transmitters via Nexlink over long distances. For extreme distances, the NexLink range can be extended further by using an optional A20-Outpost-NL (coming soon) NexLink extender which connects to the A20-SuperNexus via ethernet.

NexLink Tuning Mode
Determines whether Astral transmitter frequency, modulation, and privacy settings are automatically sent (pushed) from the A20-SuperNexus to the Astral transmitter over NexLink.

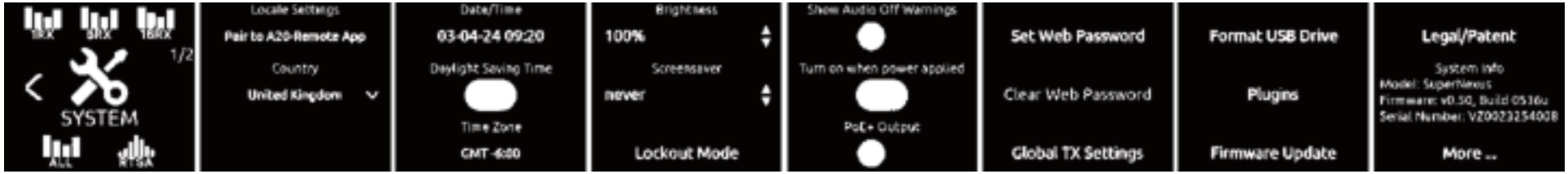
- Push to Transmitter
- Manual (must be set manually on the receiver and transmitter).

Local NexLink Antennas
Determines whether the front or rear pear of antennas are used for NexLink communication when the NexLink Host is set to ‘Local’.

Note: The A20-SuperNexus incorporates NexLink status feedback. For details, see NexLink Status Alerts

System Menu

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



Locale Settings
Includes the 'Pair to A20-Remote App and Country buttons.

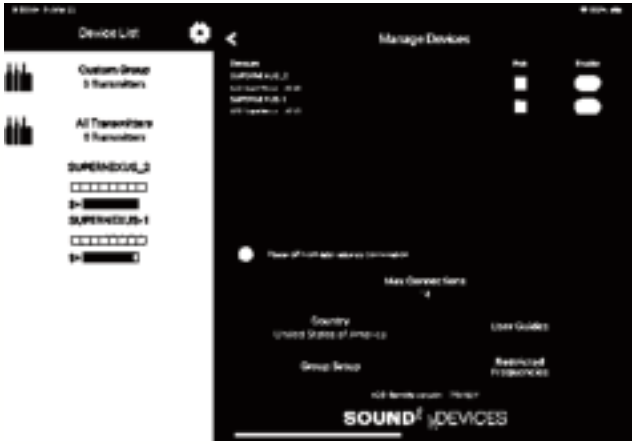
Country
The Country setting determines which Tuning Bands, RF frequencies, and transmit powers are legally available for selection in a Country.

- 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:

  "One or more transmitters are set to a different country than the A20-SuperNexus"

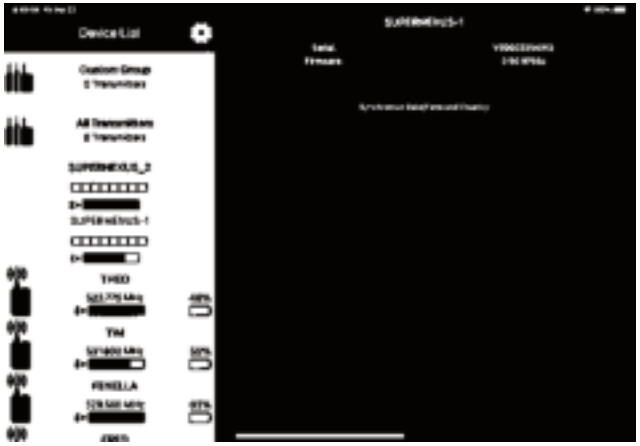
  The A20-SuperNexus can quickly change the country setting of all of its paired transmitters automatically to make changing locations very easy. To accomplish this, the A20-SuperNexus uses an iPhone/Android app along with a smartphone's GPS to verify the current location. Instructions to do this:

  - 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 A20-SuperNexus is paired, use A20-Remote to sync the mobile device's country (determined by the mobile device's location services) and date/time to the A20-SuperNexus.

- **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.

In the event that 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.

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.

Daylight Savings
Tap to toggle daylight savings on/off.

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

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.*

Show Audio Off Warnings
When the toggle is off, the A20-SuperNexus does not show a warning popup that audio will stop when switching Band s and when switching to Scan mode.

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.

Set Web Password
Tap to set a security password for accessing the Web App.

Clear Web Password
Tap to clear the Web App password. The button is grayed out when no password is set.

Global TX Settings
The Global TX Settings menu provides options for enabling or disabling power off, stop, or mute confirmation popups.

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 .

Format USB Drive
A USB drive connected to the USB-A 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

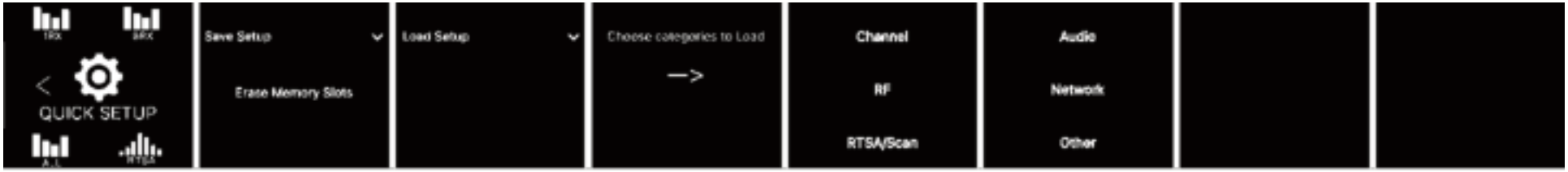
Legal/Patent
Displays legal and patent information for the A20-SuperNexus across OLED screens 1-6

System Information
Displays model name, firmware version, and serial number

More …
Tap to go to page 2 of the System menu.

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

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	Port Configuration
	Control: DHCP On/Off
	Dante: DHCP On/Off
	Control: Static IP address, subnet mask, gateway
	Dante: Static IP address, subnet mask, gateway
	RF Mirror Mode
Other	Brightness

	Screensaver
	Turn On when Power is Applied
	Time Zone
	Daylight Savings On/Off
	TX List > Global TX Settings: Power Off confirmation, Stop Confirmation, Mute confirmation
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.

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 of 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 5.8 GHz so that the Wi-Fi doesn't interfere with the 2.4 GHz NexLink.

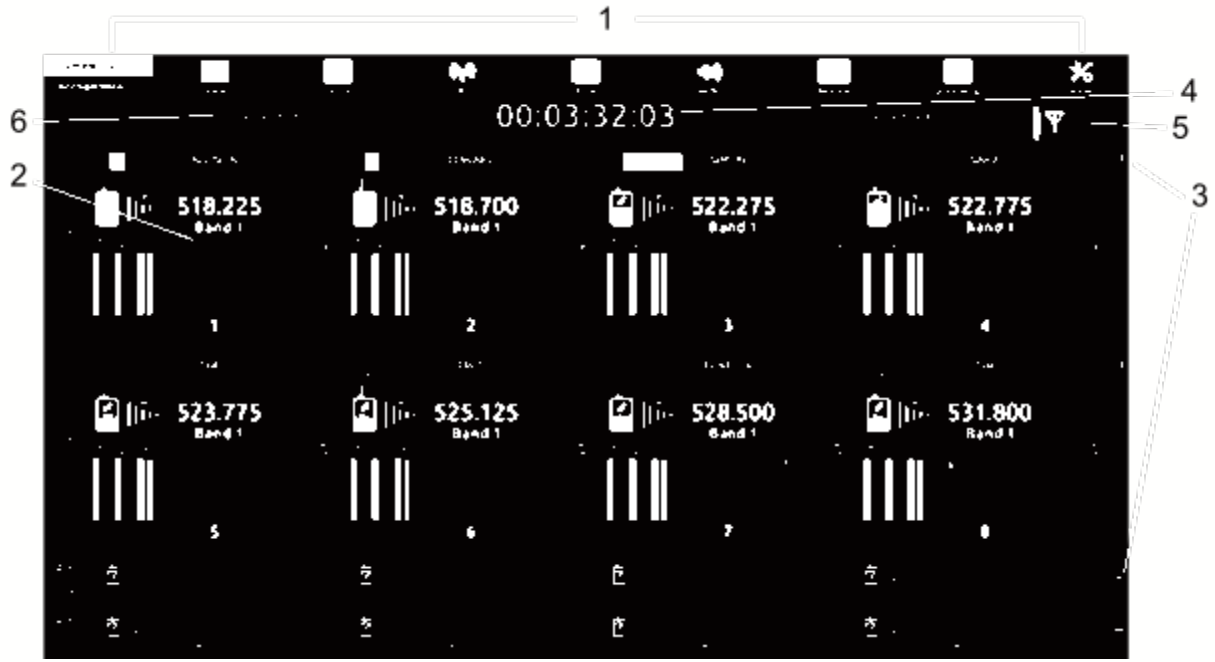
Accessing the Nexus Web App

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 Networking 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.

For the purpose of this user guide, all web app screenshots are captured using an Apple MacBook Pro 15" computer.

Home View



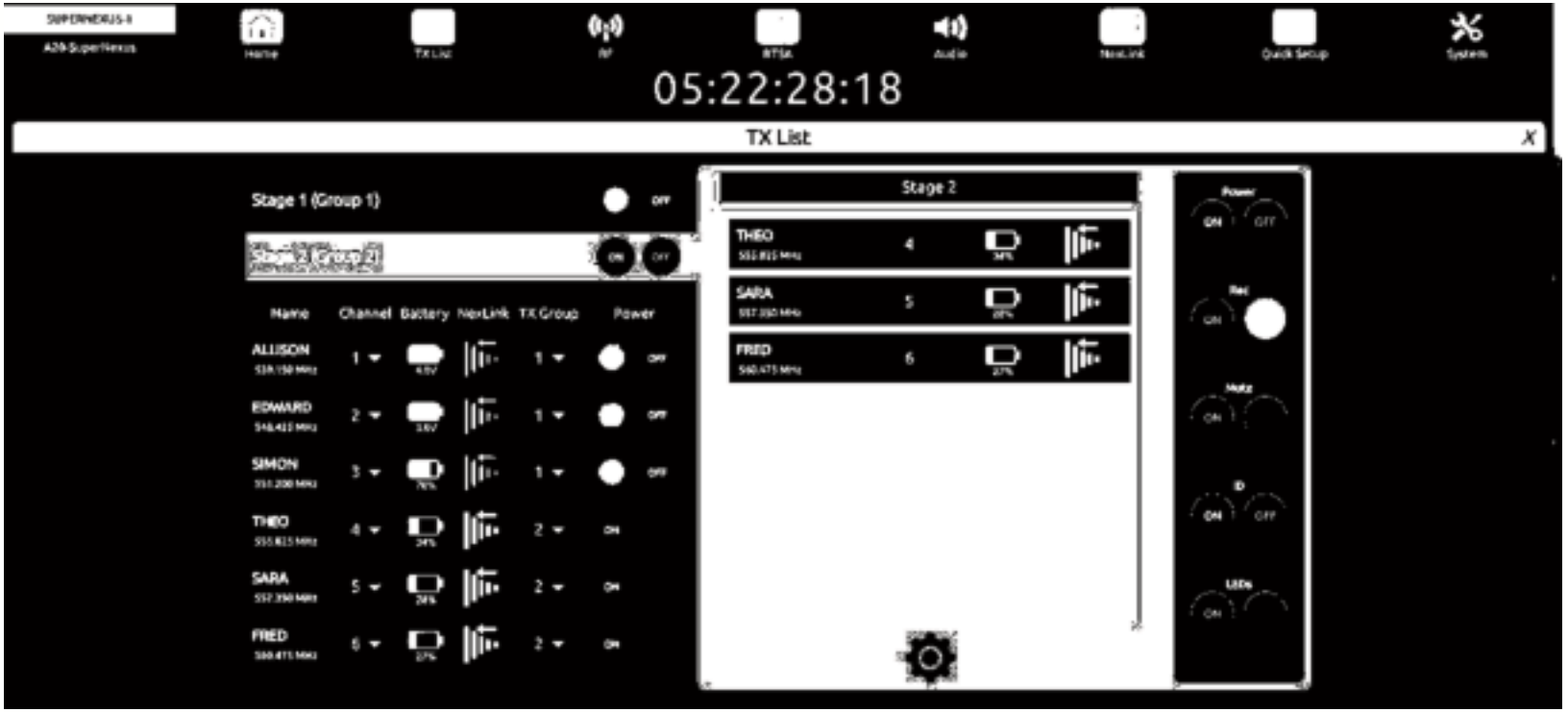
1. **Menu Bar:** Click or tap to access the various menus. From left to right:

    a. **A20-SuperNexus:** Displays A20-SuperNexus name. Read-only.

    b. **Home:** Displays an overview of all receiver channels.

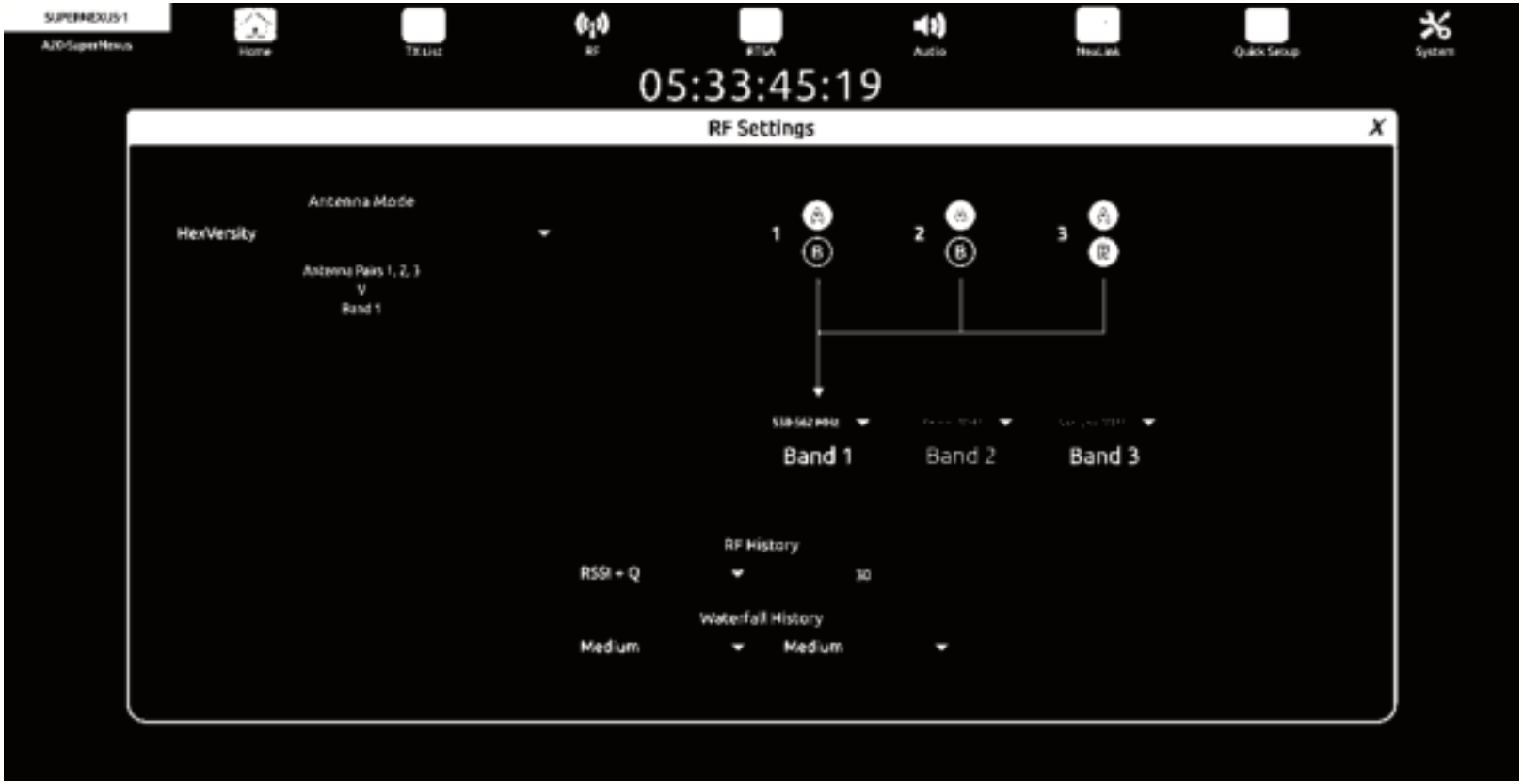
    c. **TX List:** Displays a list of all paired Astral transmitters, their battery level, which RX channel they are assigned to, their NexLink status, and TX Group assignment. Each row includes quick access to transmitter Power On/Off control. Up to 64 transmitters can be paired with the A20-SuperNexus. 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.

TX List



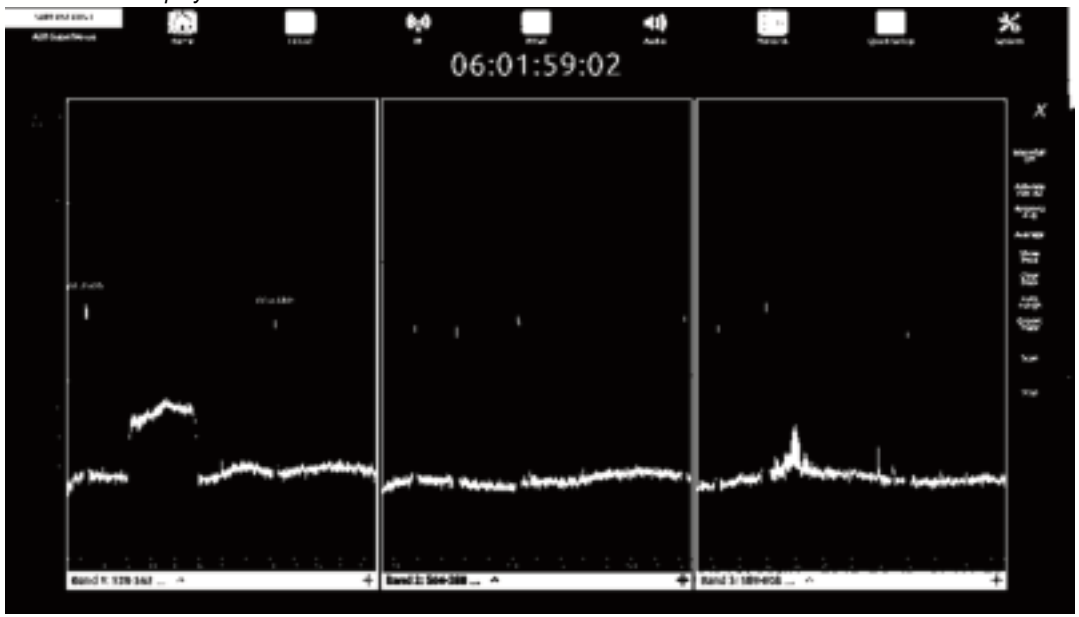
d. **RF:** Sets Antenna Mode, Bands 1-3, Antenna Pairs 1-3, RF and Waterfall History parameters. See RF Menu

RF Settings

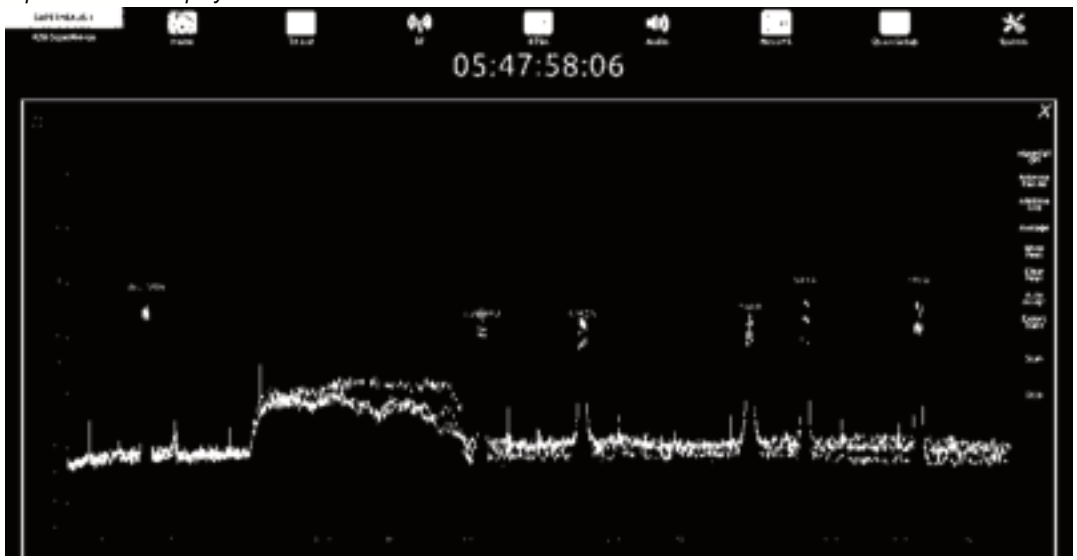


e. **RTSA View:** Antenna Mode determines the number of bands displayed. Click on '+' to display a band fully expanded. Drag the dividers between each band to resize bands.

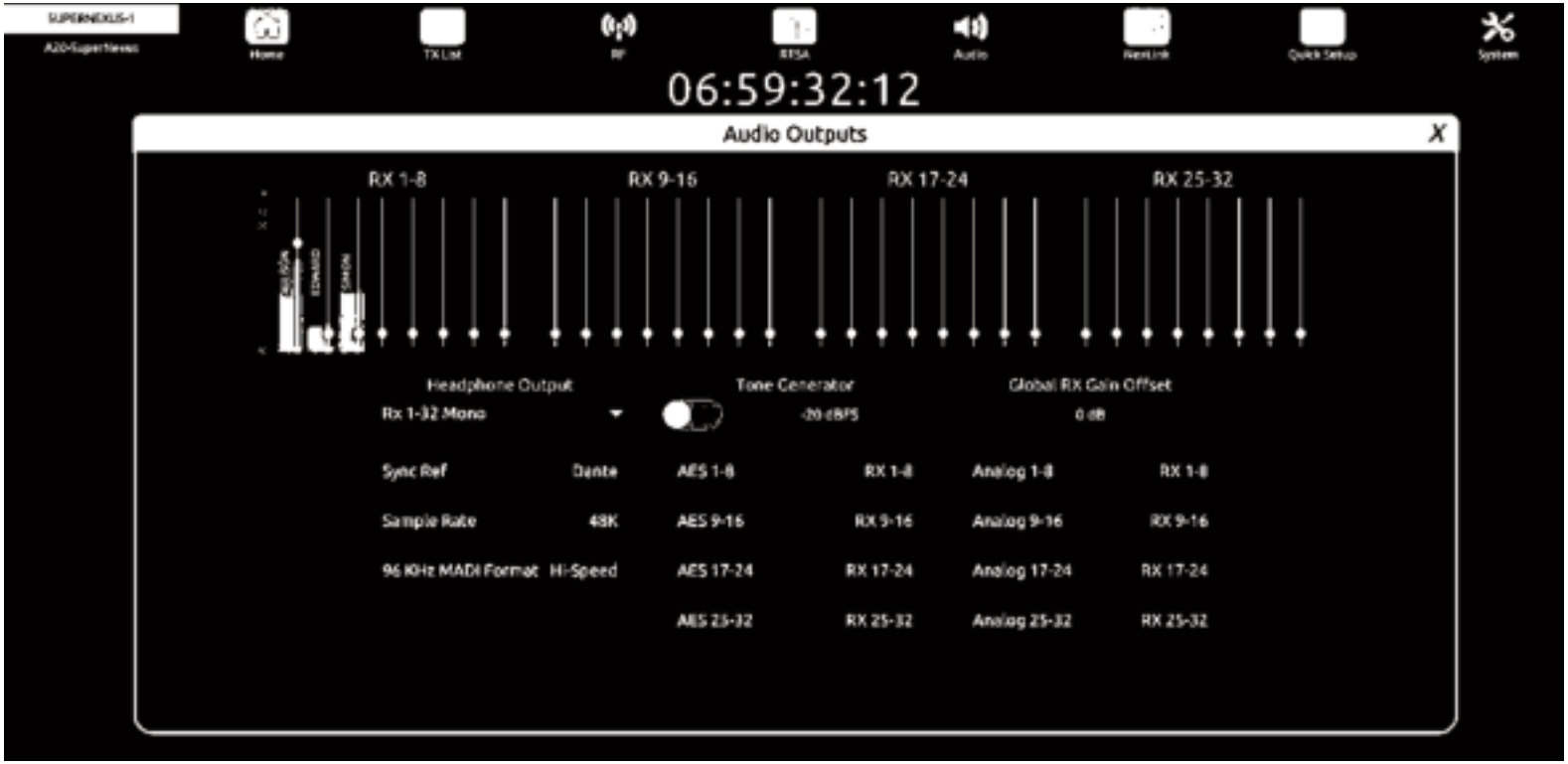
3-Band RTSA display



Expanded Band display



f. **Audio:** Sets sync reference, sample rate, AES, analog output, and Headphone output routing. Use the RX channel metering, gain level sliders, and Global RX Gain Offset to optimize audio output levels.



g. **NexLink:** NexLink related settings including setup of the A20-Outpost-NL (coming soon)

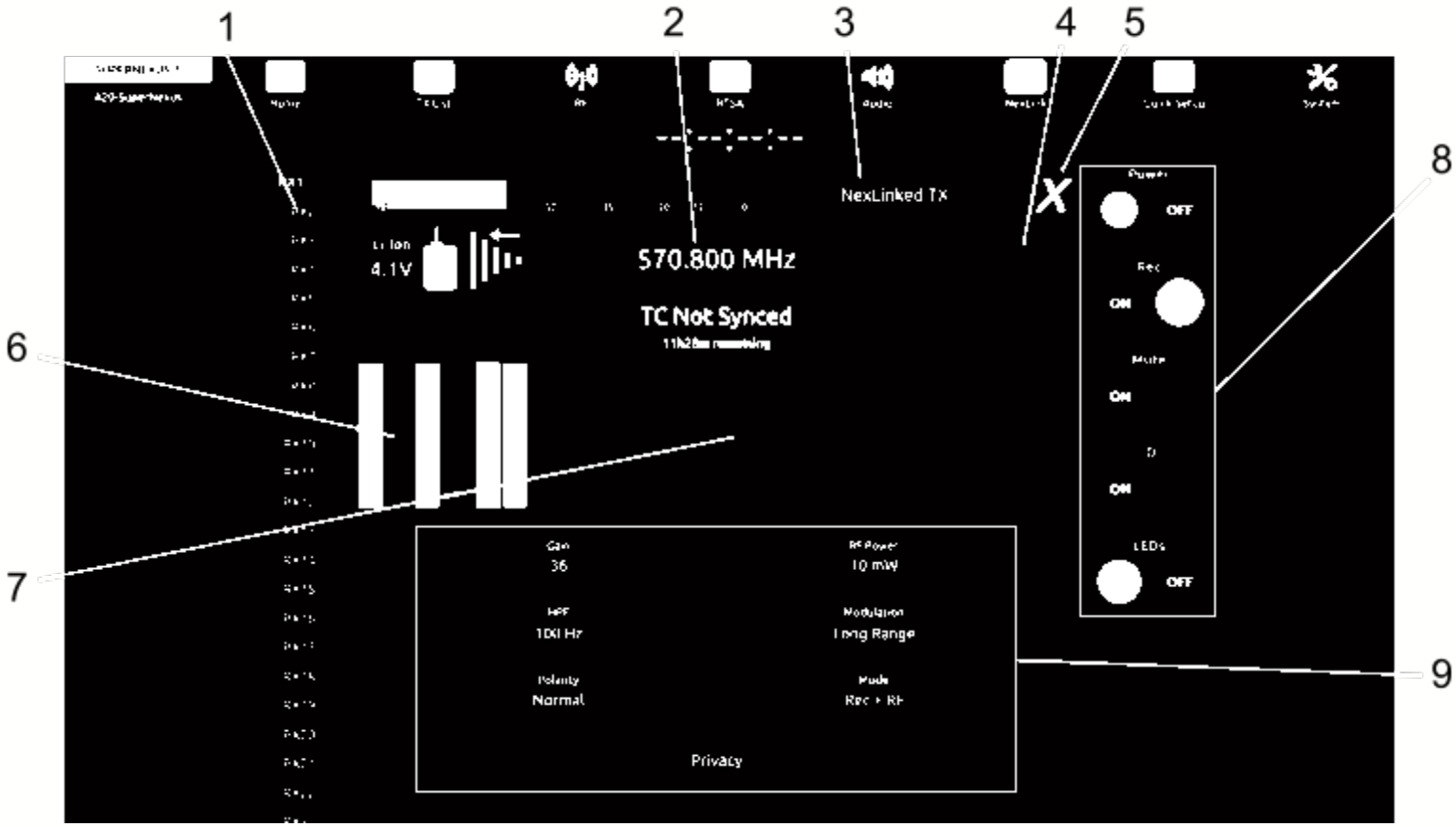
h. **Quick Setup:** Load and save settings files for quick configuration of the SueprNexus's settings.

i. **System:** Power, security, lockout notification settings and A20-SuperNexus System Info.

2. **Receiver Channel:** Displays a receiver channel's various status information. Click or tap to display a receiver channel's full screen 1RX View, received signal, audio level, control functions and status. Some functions are grayed out in some modes.
3. **Collapse/Expand Receiver Group Icon:** Click or tap the 'X' to collapse a row of four receivers (RX1-4, RX5-8). When collapsed, only the audio meter, Q-meter, and TX battery level are shown. Tap the '+' to expand the row. Useful for decluttering the view when fewer wireless channels are being used.
4. **Timecode:** Displays the timecode connected to the A20-SuperNexus's LTC/WCK BNC input.
5. **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, B antenna indicator is shown screen right. Red = Overload. Orange = Approaching overload.
6. **Show Mode / RF Mirror Mode Indicator:** Indicates whether Show Mode or RF Mirror Mode is on. In these modes, the Web App is read-only.

Web App 1RX View

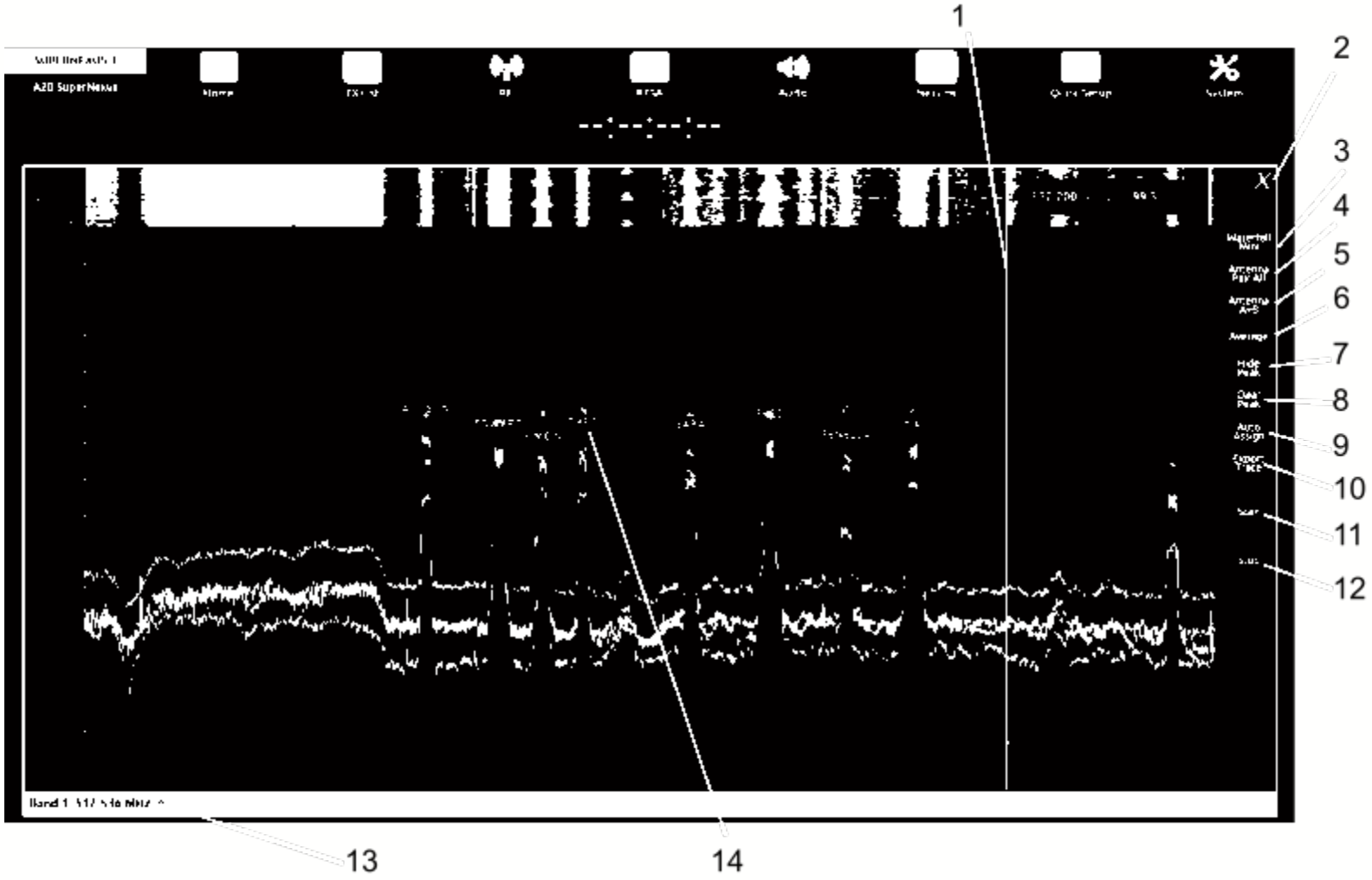
- Duplicates the functionality of the A20-SuperNexus's front panel 1RX View. See 1RX View.
- When Mode is set to RF Only, the Rec buttons are grayed out.



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, select 'Off' at the top of the left frequency list.
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, and Polarity only apply to the receiver channel. All transmitter settings are sent over NexLink.

Web App RTSA View

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



Tip: *With smartphones, tablets, and computers with track pad 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. Note that in Scan mode, it is not possible to display all antenna pairs.
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 AutoAssign range markers. Tap the Assign button to start the AutoAssign process.
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.
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.

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 Nexus 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.

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.

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 (available from Link USA)

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 ¼" 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 ¼" 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

SuperNexus Accessories

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

Optional

- A20-Outpost-NL (coming soon)
- 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)

A20-Opto (Coming Soon) 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-Outpost-NL (Coming Soon)

The A20-Outpost-NL is a remote NexLink-antenna box. NexLink is Sound Devices's 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 of the action within a large stadium, with its antennas in the arena, not the equipment rack.

- Box for remote-mounting NexLink antennas via Ethernet
- Powered by PoE or USB-C input, 15W max.
- Cat-6 (Ethercon connector) or Optical Ethernet (via SFP module)
- Rugged, rain-resistant chassis
- Dual ¼", 3/8", 5/8" mounting hole blocks
- Very easy plug-n-play setup.
- Pair with A20-Nexus or A20-SuperNexus via the Outpost-NL's USB-C port.
- Quick switching between Outpost-NLs added to the A20-Nexus and A20-SuperNexus inventory list. E.g. switching between Stage 1 and Stage 2
- Customize an Outpost-NL's name for easy identification e.g. Stage 1, Stage 2 etc.
- Monitor Outpost-NL connection status directly from A20-Nexus or A20-SuperNexus.
- Recessed reset button for resetting to factory defaults

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 ¼”-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

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'.

Frequency Band Restrictions

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

In some restricted frequency bands, the operator will need to obtain an unlock code from Sound Devices to assign a restricted frequency to the transmitter. Once a license has been granted, please contact Sound Devices (RF_Request@SoundDevices.com) to obtain the necessary unlock code.

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 a number of 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)

Similar to the 914.5 - 944 MHz band, nationwide licenses are not typically granted for wireless operation in 1435-1525 MHz.

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/

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	Balanced

A20-SuperNexus Specifications

Specifications are subject to change without prior notice. For the latest information available on all Sound Devices products, visit our website: www.sounddevices.com

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 or Long Range, 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, HexVersity, 3-Zone Combine, and Split Diversity

Audio

Latency
- Standard modulation = 2 ms, analog or digital outputs
- Long Range modulation = 3.9 ms, analog or digital outputs

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

Dynamic Range
- > 130 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

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-HMI (HMI 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.

Control

- Web-based control and monitoring of all A20-SuperNexus settings
- GPIO with the A20-Opto docked.

Connections

- 2x RJ45 ports and 2x SFP ports: For Dante, Control, and A20-Outpost-NL (shipping soon).

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, 1.5A output; supports keyboards, flash drives, Astral transmitters, and USB hubs
- USB-C: 5V, 3A output; supports keyboards, flash drives, Astral transmitters, and USB hubs

Drive Format

- FAT32

Powering

- AC Input: 90-240 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)

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

- ¼”-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 0.67 in)

Weight

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

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 Nexus, 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 Nexus's front end, mean that the user has to 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).

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/

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. In order 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

Legal Notices

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

LIMITATION ON SOUND DEVICES' LIABILITY. TO THE FULLEST EXTENT PERMITTED BY LAW, SOUND DEVICES SHALL HAVE NO LIABILITY TO THE END USER OR ANY OTHER PERSON FOR COSTS, EXPENSES, DIRECT DAMAGES, INCIDENTAL DAMAGES, PUNITIVE DAMAGES, SPECIAL DAMAGES, CONSEQUENTIAL DAMAGES OR OTHER DAMAGES OF ANY KIND OR NATURE WHATSOEVER ARISING OUT OF OR RELATING TO THE PRODUCTS, THESE TERMS AND CONDITIONS OR THE PARTIES' RELATIONSHIP, INCLUDING, WITHOUT LIMITATION, DAMAGES RESULTING FROM OR RELATED TO THE DELETION OR OTHER LOSS OF AUDIO RECORDINGS OR DATA, REDUCED OR DIMINISHED AUDIO QUALITY OR OTHER SIMILAR AUDIO DEFECTS ARISING FROM, RELATED TO OR OTHERWISE ATTRIBUTABLE TO THE PRODUCTS OR THE END USER'S USE OR OPERATION THEREOF, REGARDLESS OF WHETHER SUCH DAMAGES ARE CLAIMED UNDER CONTRACT, TORT OR ANY OTHER THEORY. "CONSEQUENTIAL DAMAGES" FOR WHICH SOUND DEVICES SHALL NOT BE LIABLE SHALL INCLUDE, WITHOUT LIMITATION, LOST PROFITS, PENALTIES, DELAY DAMAGES, LIQUIDATED DAMAGES AND OTHER DAMAGES AND LIABILITIES WHICH END USER SHALL BE OBLIGATED TO PAY OR WHICH END USER OR ANY OTHER PARTY MAY INCUR RELATED TO OR ARISING OUT OF ITS CONTRACTS WITH ITS CUSTOMERS OR OTHER THIRD PARTIES. NOTWITHSTANDING AND WITHOUT LIMITING THE FOREGOING, IN NO EVENT SHALL SOUND DEVICES BE LIABLE FOR ANY AMOUNT OF DAMAGES IN EXCESS OF AMOUNTS PAID BY THE END USER FOR THE PRODUCTS AS TO WHICH ANY LIABILITY HAS BEEN DETERMINED TO EXIST. SOUND DEVICES AND END USER EXPRESSLY AGREE THAT THE PRICE FOR THE PRODUCTS WAS DETERMINED IN CONSIDERATION OF THE LIMITATION ON LIABILITY AND DAMAGES SET FORTH HEREIN AND SUCH LIMITATION HAS BEEN SPECIFICALLY BARGAINED FOR AND CONSTITUTES AN AGREED ALLOCATION OF RISK WHICH SHALL SURVIVE THE DETERMINATION OF ANY COURT OF COMPETENT JURISDICTION THAT ANY REMEDY HEREIN FAILS OF ITS ESSENTIAL PURPOSE.

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	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.

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 Bandfréquences pour la population générale et environnements non controllés. Une distance minimale d'au moins 20cm 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 aprouvé 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'usager 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)	有毒有害物质或元素(Hazardous Substances or Elements)					
(Component Name)	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
接线器 (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

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.

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.

Allen & Heath 确定其產品在标准使用條件下，至少 10 年不會释放 SJ/T11363-2006 中所列明的任何禁止物質。

温度范围: 0 – 40 c
濕度范围: 0 – 93%
产品應放於室內，并保持通风。
电源: 90 – 250V AC, 50/60 Hz.
如果产品有缺陷必須维修后才可使用。
所有维修必须由授權的代理機構進行。

Declaration of Conformity

CE

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 harmonisation legislation:

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

The following harmonised 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

SOUND DEVICES

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