



Sound Devices Astral Opto

Installation Instructions

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Astral Opto for Astral ARX32

The Astral Opto is an optional expansion box for the Astral ARX32 that adds Optocore, MADI, AES, and analog outputs plus GPIO functionality. The Astral Opto comes in two versions, the Astral Opto and Astral Opto(ST). The only difference between the Astral Opto and Astral Opto(ST) is the connector type used for the Optocore audio outputs, HMA or ST respectively. Photos in this guide are for the Astral Opto, but installation of an Astral Opto(ST) is identical

The Astral Opto connects to the Astral ARX32 via a multi-pin connector located on the bottom of Astral ARX32. Optocore output channels carry audio outs 1-64. The Astral Opto has 2x MADI outputs on 2x BNC connectors. At 48k, both MADI Outputs are hardwired to audio outs 1-64. At 96k, MADI Out 1 carries 1-32 and MADI Out 2 carries 33-64. For 96 kHz applications, the MADI outputs can be configured as Hi-Speed or SMUX 96k MADI format. The 32-channel Analog and AES digital (AES72 Type 1M) Outputs are configured as a redundant set of outputs that are fed from the same sources routed to the analog and digital outputs on the Astral ARX32.

When connected to an Astral ARX32:

- Power is shared between both units. Either can power the entire assembly. Both can be connected to power for redundancy.
- Control of the Astral Opto is from the Astral ARX32 menus. Go to Audio -> Astral Opto Setup.
- Firmware versions on both must match and the firmware update is performed on the Astral ARX32
 - It's best practice to update the Astral ARX32 firmware after the Astral Opto is connected to ensure the firmware is in sync.

See the Astral ARX32 User Guide for complete operational instructions.

Parts Included for Installation

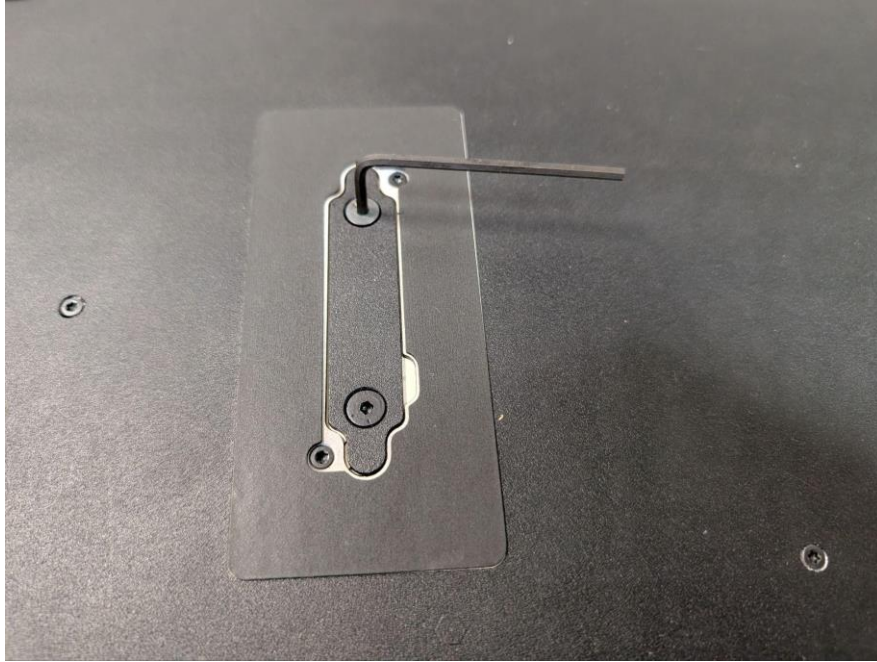
- 1.5 mm hex wrench
- 2.5 mm hex wrench
- Bridge board assembly
- Double rack ear assembly (rack ears, rear mounting bracket, 16 screws)

Installation

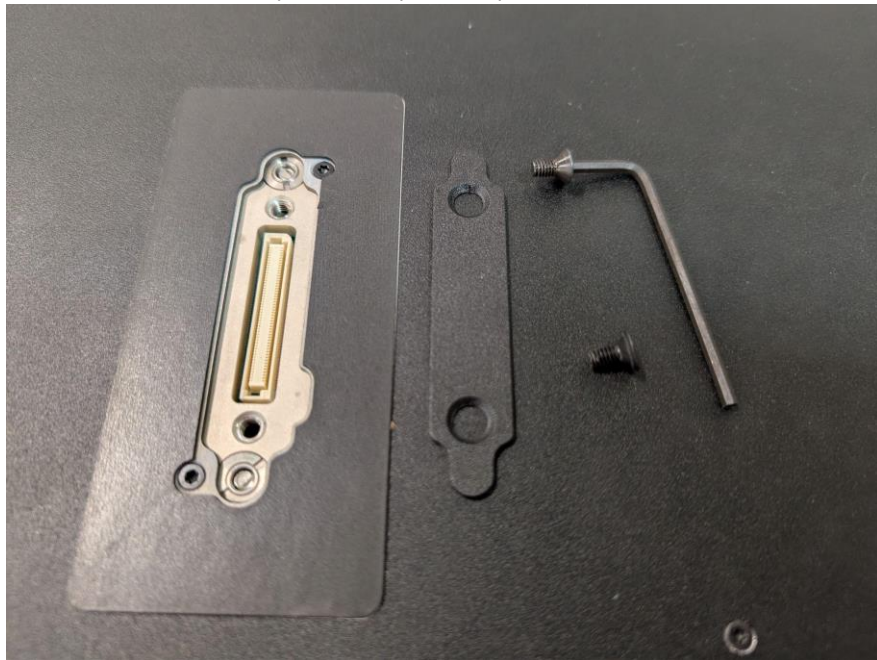
Attaching the Astral Opto to the Astral ARX32

1. Unbox the Astral Opto and open the accessory packets.
2. Using the supplied 2.5 mm hex wrench, remove the protective plates covering the connecting ports on the top and bottom of the Astral Opto.

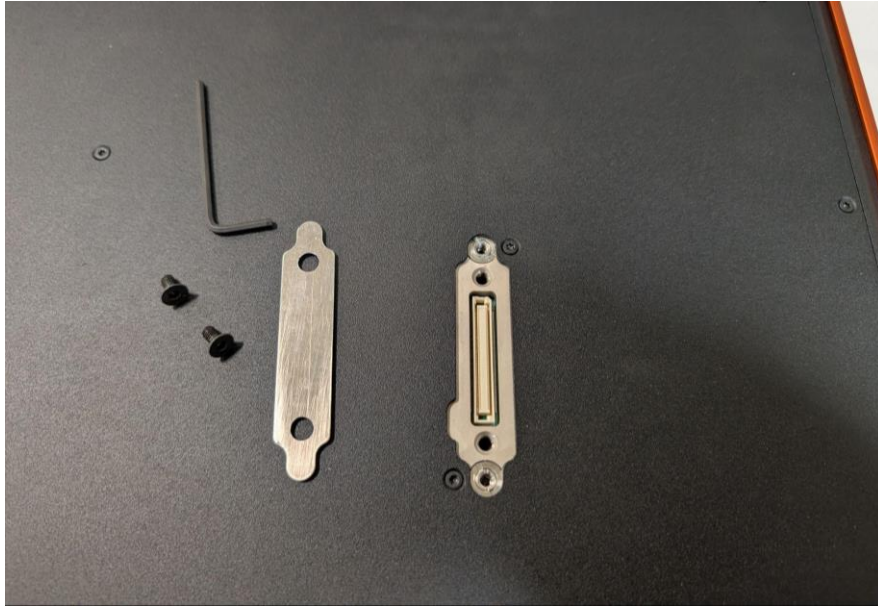
Top Panel



Top Panel with protective plate removed



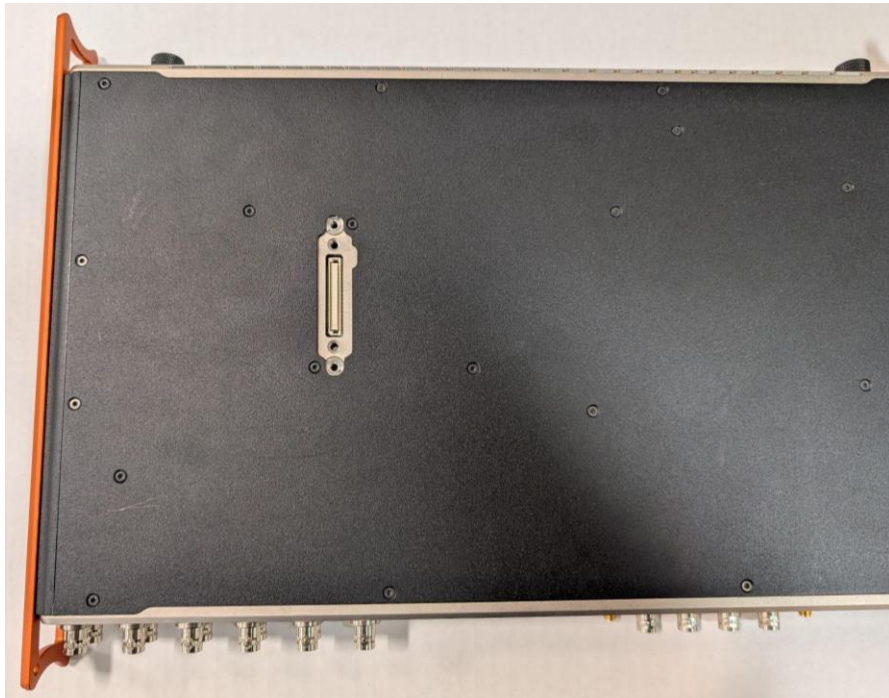
Bottom panel with protective plate removed



3. Remove both rack ears (6 screws each) from the sides of the Astral ARX32 using the supplied 2.5 mm hex wrench. Put the removed screws aside for safe keeping. They will be needed to secure the double rack ear assembly later.



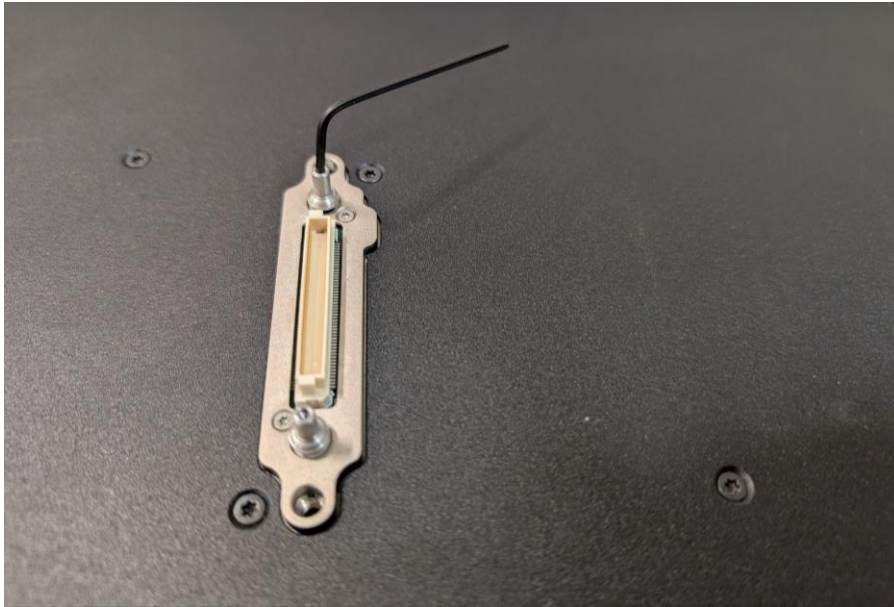
4. Lay the Astral ARX32 on your work surface with the bottom side facing up.
5. Using the supplied 2.5 mm hex wrench, remove the protective plate covering the connecting port on the bottom of the ARX32.



6. Paying attention to the keying feature that faces the inside of the chassis, gently connect the bridge board assembly (included with Astral Opto) to the port on the bottom of the Astral ARX32.



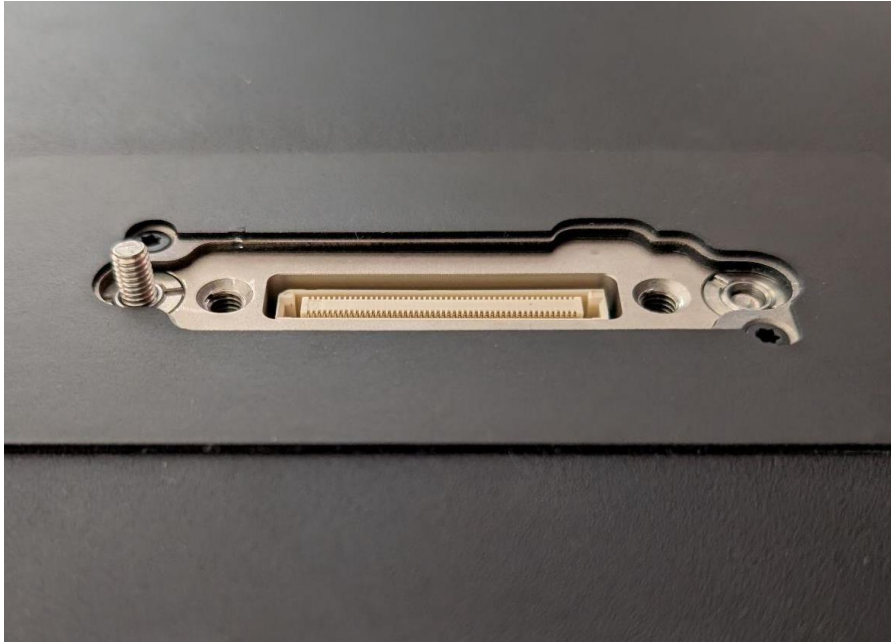
7. Tighten the two alignment posts using the included 1.5 mm hex wrench.



8. With the Astral Opto balanced on one of its sides, insert the 2.5 mm hex wrench into the outer holes of the connecting port on the bottom of the Astral Opto. This will engage a captive, spring-loaded connecting screw. Note that when you push in the wrench, the captive screw protrudes through the top of the Astral Opto.



Astral Opto top panel with the captive, spring-loaded screw pushed through.

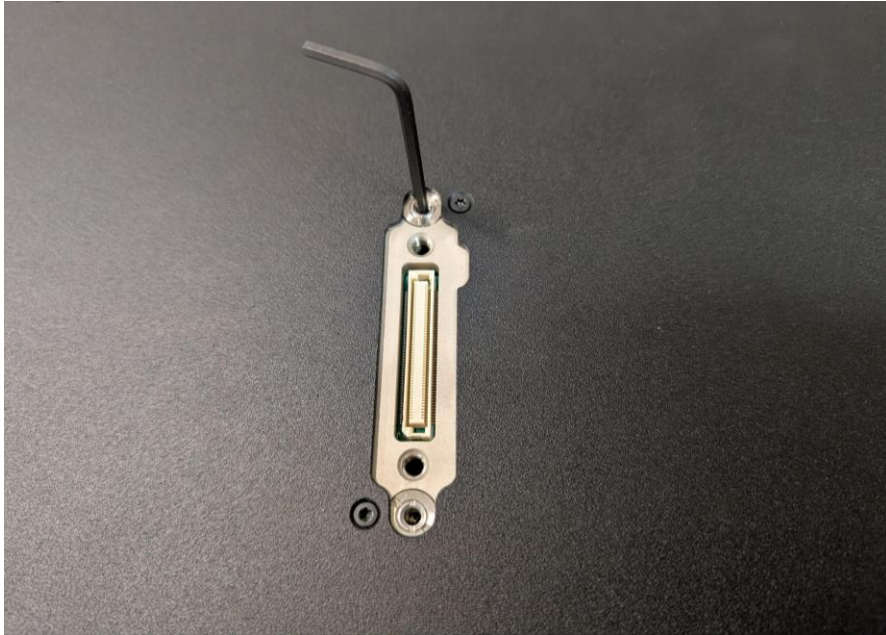


9. Paying attention to the alignment posts, gently place the Astral Opto upside down on the ARX32 and align/connect the ports.



10. Insert the supplied 2.5 mm hex wrench into the outer holes of the connecting port on the bottom of the Astral Opto. Push to engage the captive, spring-loaded connecting screw, then turn clockwise until tight to fasten the bridge board assembly between the Astral Opto and Astral ARX32.

Bottom Panel of the Astral Opto



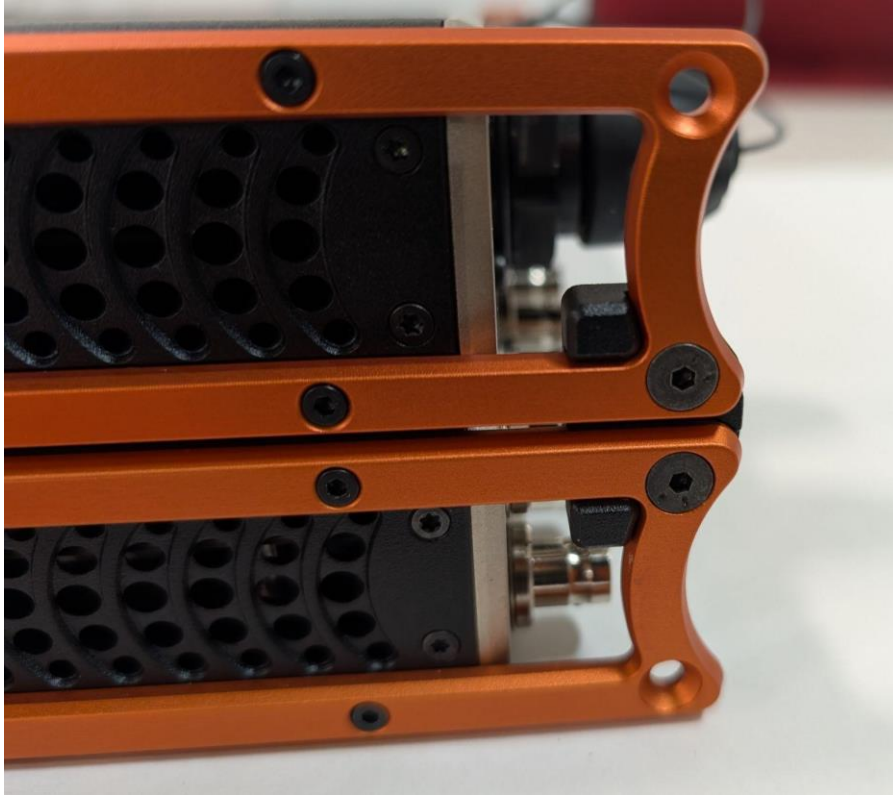
11. Using the supplied screws along with the rack ear screws removed earlier, fasten the double rack ear assembly to both front sides of the Astral Opto / Astral ARX32.

Front side view

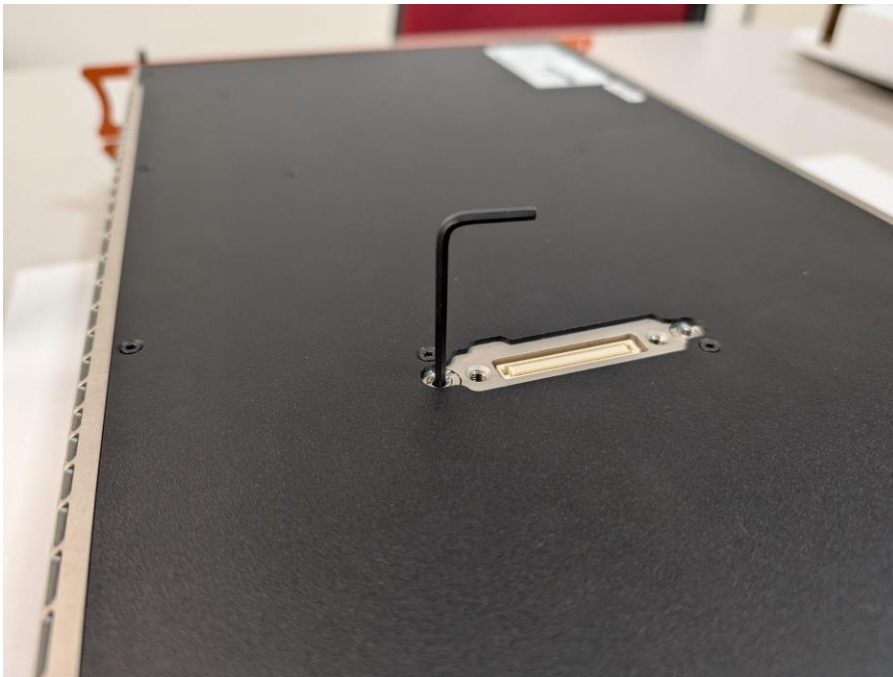


12. Install the rear mounting brackets.

Rear side view



13. Check the tightness of the connection port screws on the bottom of the Astral Opto. Retighten if necessary.



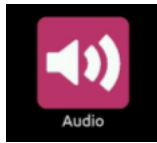
14. Re-install port cover on bottom of Astral Opto



15. Connect power and turn on the ARX32.
16. Check the Astral Opto firmware version in the ARX32's Audio -> Astral Opto Setup menu. If "Update with ARX32 PRG" is shown in **RED**, install the latest firmware on the Astral ARX32 with Astral Opto connected. The firmware update will automatically be applied to both units.



17. From the Main Menu of the **Astral ARX32**, Select the Audio icon.



18. In OLED 2 Select **Astral Opto Setup**.



19. The **Astral Opto Setup** menu provides access to the expansion box's **Optocore ID**, **Optocore Speed**, **Optocore Output** channel configuration, MADI Out 3&4 Sync Ref, and GPIO settings. Use the right encoder on the **Astral ARX32** to change selections.



Astral Opto Setup Menu

MADI Out 3&4 Sync Reference

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

Follow [Uses the same sync reference as the **Astral ARX32**]. *Default

WCK In [Uses the **Astral 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 **Astral ARX32**.

48k [48 kHz SSRC'd to **Astral ARX32** Sync Ref]. If **Astral ARX32**'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 **Astral ARX32** Sync Ref]. If **Astral ARX32**'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 **Astral Opto** running at 96 kHz, the **Astral Opto** MADI out format is determined by the '96k MADI Format' setting on the **Astral ARX32**.*

Optocore ID

Sets the Optocore ID. Choose from 11 to 24.

Optocore Speed

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

Optocore Outputs

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

GPIO 1-16

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

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

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

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

GPIO 'n':

Lists the following voltage triggering options:

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

Input, Toggle (Triggers the ON action when the GP input transitions from low to high. Triggers the OFF action when the GP Input transitions from high to low).

Input, One Shot ON (Triggers the ON action when the GP input transitions from low to high)

Input, One Shot OFF (Triggers the OFF action when the GP input transitions from low to high)

Output, Latch ON (GP output changes state (high or low) each time the source condition changes from OFF to ON). This is the default setting for GPIO 9-16.

Output, Latch OFF (GP output changes state (high or low) each time the source condition changes from ON to OFF).

Output, Direct (GP output directly follows the source condition - GP output goes high when source condition goes ON and goes low when source condition goes OFF).

Output, One Shot ON (GP output goes high for 1 second when the source condition changes to ON).

Output, One Shot OFF (GP output goes high for 1 second when the source condition changes to OFF).

Target Actions and Source Conditions:

When the GPIO is configured as an input (GPI) using the GPIO 'n' button, the Action button lists the options that can be triggered when GPI is active.

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

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

Target/Source Channel:

When the GPIO is configured as an input (GPI) using the GPIO 'n' button, the Target Channel button is displayed. This selects which RX channels the chosen Action targets.

When the GPIO is configured as an output (GPO) using the GPIO 'n' button, the Source Channel button is displayed. This selects which RX channel(s) conditions affect the GPO.

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

Astral Opto Info

Displays the **Astral** Opto's firmware version and serial number. The firmware version flashes red if the **Astral** Opto's firmware is incompatible with the currently installed **ARX32** firmware.

Updating the Astral Opto's firmware

The **Astral** Opto must be connected to a **ARX32** in order for its firmware to be updated. Its firmware is embedded within the **ARX32** .prg firmware update file and is updated automatically when the **ARX32**'s firmware is updated.

If the **Astral** Opto firmware is incompatible with the **ARX32** firmware, the firmware version info in the **Astral** Opto Info OLED flashes red. Update to the latest **ARX32** firmware with the **Astral** Opto installed to resolve the issue.

Warranty

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