

# NAV-TV

INTERFACING THE FUTURE



**ZEN-F25**

**Ford A<sup>2</sup>B<sup>®</sup> to 6-channel Analog & Digital sound processor**

***NTV-KIT1030***



**A<sup>2</sup>B<sup>®</sup>** | ***Automotive  
Audio Bus***



A<sup>2</sup>B<sup>®</sup> is a registered trademark of Analog Devices Inc.

**WARNING:** Due to the complexity and sensitivity of the OEM Ford A<sup>2</sup>B®, the ZEN-A2B must be used with amplifiers that are grounded directly to the battery. The resistance to (true battery) ground of the Amplifier(s) must not exceed 1 ohm, otherwise you will likely experience performance issues or damage the ZEN-A2B.

## Overview

The DSP12A-A2B processor seamlessly converts 2025+ Ford factory A<sup>2</sup>B® (Automotive Audio Bus) to 12-channel analog RCA and TOSLINK output. Providing the best possible signal to aftermarket amplifiers to the OE B&O or Revel amplified SYNC4 system has never been so simple. This kit integrates with the OEM A<sup>2</sup>B® bus to retain volume control, full fade and balance (analog only), treble, mid-range, bass control, chime level control & Bluetooth voice calls with no external speaker (true OEM integration). *NOTE: 2025+ vehicles not equipped with a factory B&O or Revel amplified system are not equipped with A<sup>2</sup>B® and do not require this interface.*

## Kit Content



## ZEN-F25 overview



## ZEN-F25 Compatibility (SYNC4)

*NOTE: All vehicles require SYNC4, this interface only applies to vehicles equipped with A<sup>2</sup>B® (B&O or Revel Amplifiers)*

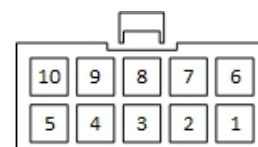
| Year(s) | Make | Model                | NOTE:    |
|---------|------|----------------------|----------|
| 2025+   | Ford | Fx50, Escape, Raptor | With B&O |
| 2025+   | Ford | Expedition           | With B&O |

## F25 Installation

1. For Zen-F25 installations, the factory amplifier must be removed and the ZEN unit can be installed into its place. If this vehicle is not amplified from factory then this interface is not needed.
2. After locating the factory amplifier, disconnect it entirely as it will no longer be in use. With the vehicle off, connect the provided ZEN harness to the (previously removed) OEM amplifier connectors (gray & black). Below is a pin out chart (just for reference):

3. Connect the OEM A<sup>2</sup>B<sup>®</sup> (USB) connector removed from the OEM amplifier to the **A2B IN** port on the ZEN unit.

| Pin # | Description      | Color        |
|-------|------------------|--------------|
| 1     | Ground (-)       | Black        |
| 2     | Remote Output    | Blue         |
| 5     | CAN HI           | Violet/White |
| 6     | Constant 12v (+) | Yellow       |
| 10    | CAN LO           | Violet       |



**Wire Side  
(HAR325)**

4. Connect the **blue** wire (PIN 2) to the remote input on the amplifier\*.

*\*If installing more than one amplifier/DSP, a relay must be used for reliable turn-on (ZEN remote output: 500mA max).*

*\*Remote wire note: the (blue) remote wire will output 12v as soon as CAN wakes (door opens, etc).*

5. **Use the ZEN online configuration tool to adjust tone levels, fader, etc. See pages 7-8 for more information on this tool. Open a browser and type in [zen/](http://zen.local/) (or [zen.local/](http://zen.local/) if on MAC). Connect via the USB to adjust desired settings.**



6. If using analog RCAs for signal to the amplifier, connect according to the reference chart below. **WARNING: Do not connect RCA cables to this interface until all amplifiers/external processors are properly grounded. Failure to do this may cause damage to the interface and VOID the warranty!**

| RCA     | 1          | 2           | 7         | 8          | 11     | 12  |
|---------|------------|-------------|-----------|------------|--------|-----|
| Channel | Left Front | Right Front | Left Rear | Right Rear | Center | Sub |

7. If using TOSLINK for signal to the amplifier, connect the cable to the TOSLINK port shown on page 2.  
**NOTE: both Analog and Digital output sound simultaneously, regardless of which type is used.**

## ZEN-F25 General Installation Notes

- **Tuning tips:**

1. Before beginning tuning process (especially with external EQ/Processors), set Bass & Treble on the head unit for each source to flat (0).
2. **Begin with amplifier/EQ gains all the way *down*.**
3. **With dynamic music playing, adjust the radio volume to maximum.**
4. **Adjust the amplifier/EQ gains to desired maximum level.**

## Multi-Color LED Status Indication

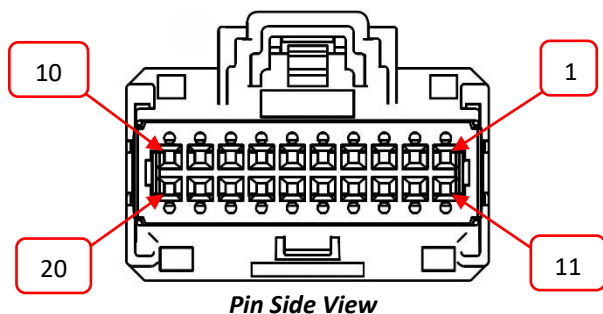


| LED Status                  | Indication   |
|-----------------------------|--|
| <i>Solid Red</i>            | <i>A<sup>2</sup>B Active only (no CAN present!)</i>            |
| <i>Solid Green</i>          | <i>CAN Active only (no A<sup>2</sup>B present!)</i>            |
| <i>Green + Red (yellow)</i> | <i>A<sup>2</sup>B + CAN Active (normal operation)</i>          |
| <i>Blue/Violet/White</i>    | <i>receiving amplifier command...</i>                          |
| <i>Blinking Red</i>         | <i>Clipping (beyond maximum digital signal level achieved)</i> |
| <i>Blinking Blue</i>        | <i>PC Link via USB (updates)</i>                               |

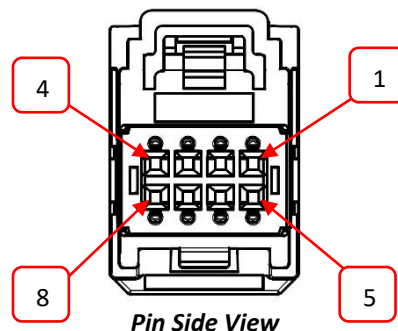
### OEM Ford B&O amplifier connector pin out

**NOTE: if engine noise is introduced through system with the ZEN, match the interface's ground wire to the aftermarket amplifier's ground.**

| Pin # | Description          | Color         |
|-------|----------------------|---------------|
| 1     | CAN HI               | Green/Blue    |
| 4     | Center Channel (-)   | Gray/Yellow   |
| 5     | Subwoofer COIL 1 (-) | Gray          |
| 6     | Right Front Door (-) | White/Orange  |
| 7     | Left Front Door (-)  | White/Brown   |
| 8     | Right Rear Door (-)  | Brown/Blue    |
| 9     | Subwoofer COIL 2 (-) | Yellow        |
| 10    | Left Rear Door (-)   | Brown/Yellow  |
| 11    | CAN LO               | White/Green   |
| 14    | Center Channel (+)   | Green         |
| 15    | Subwoofer COIL 1 (+) | Green/Violet  |
| 16    | Right Front Door (+) | White/Violet  |
| 17    | Left Front Door (+)  | White         |
| 18    | Right Rear Door (+)  | Brown/White   |
| 19    | Subwoofer COIL 2 (+) | Violet/Orange |
| 20    | Left Rear Door (+)   | White/Green   |



| Pin # | Description                   | Color              |
|-------|-------------------------------|--------------------|
| 1     | Ground (-)                    | Black/Violet       |
| 2     | <i>CAN HI (Lincoln only)*</i> | <i>Green/Blue</i>  |
| 3     | <i>CAN LO (Lincoln only)*</i> | <i>White/Green</i> |
| 4     | Constant 12v (+)              | Brown/Red          |
| 5     | Ground (-)                    | Black/Violet       |
| 6     | --Not Used--                  | --                 |
| 7     | --Not Used--                  | --                 |
| 8     | Constant 12v (+)              | Brown/Red          |



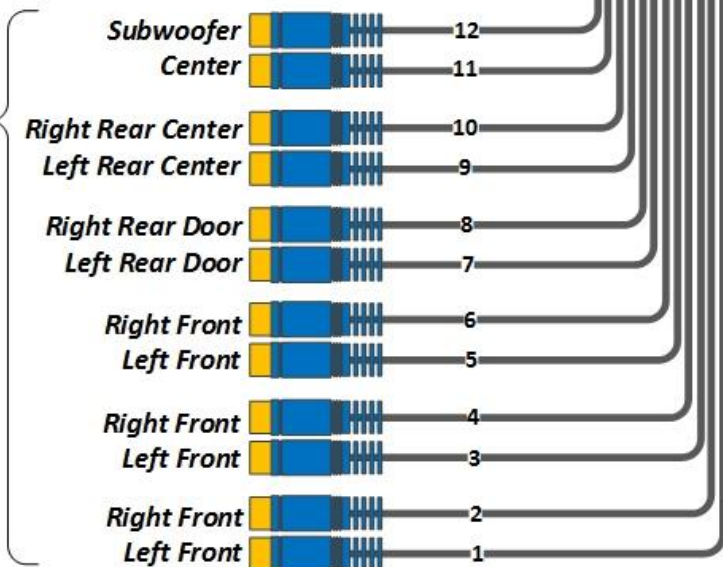
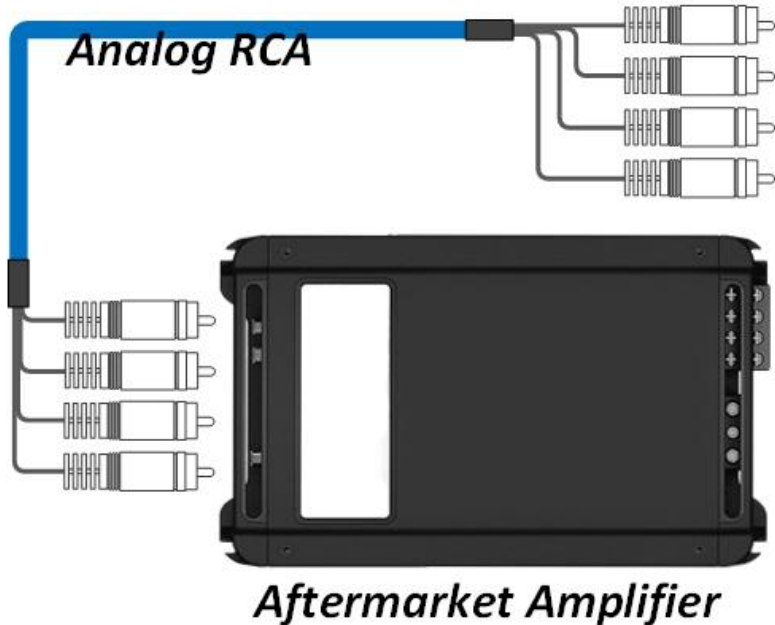
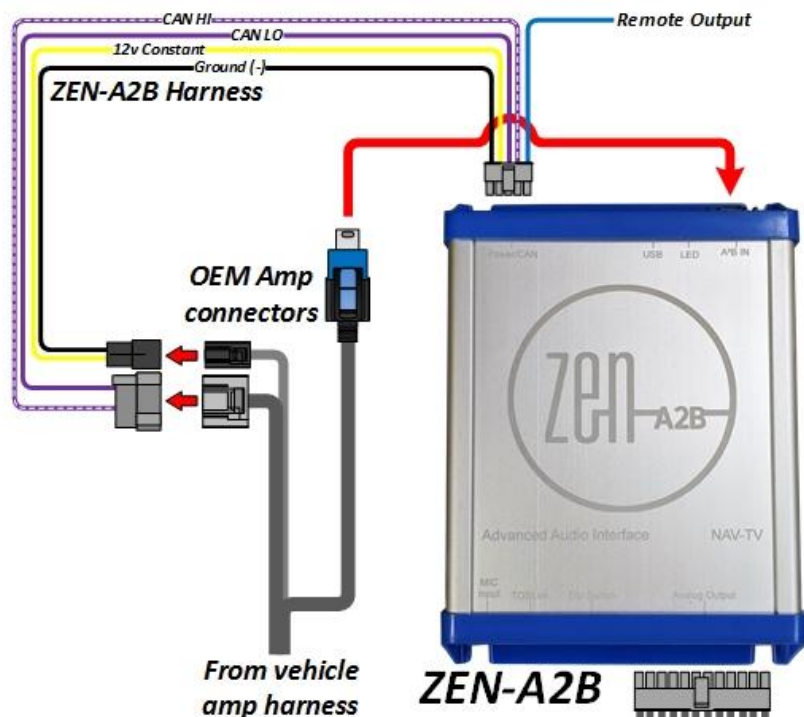
*\*The CAN wires on some Revel systems (Lincoln only) are located on the OEM power harness instead of the speaker harness. For these vehicles you will need to hard wire to the location shown here for proper ZEN operation.*

### ZEN-F25 System Layout (analog)



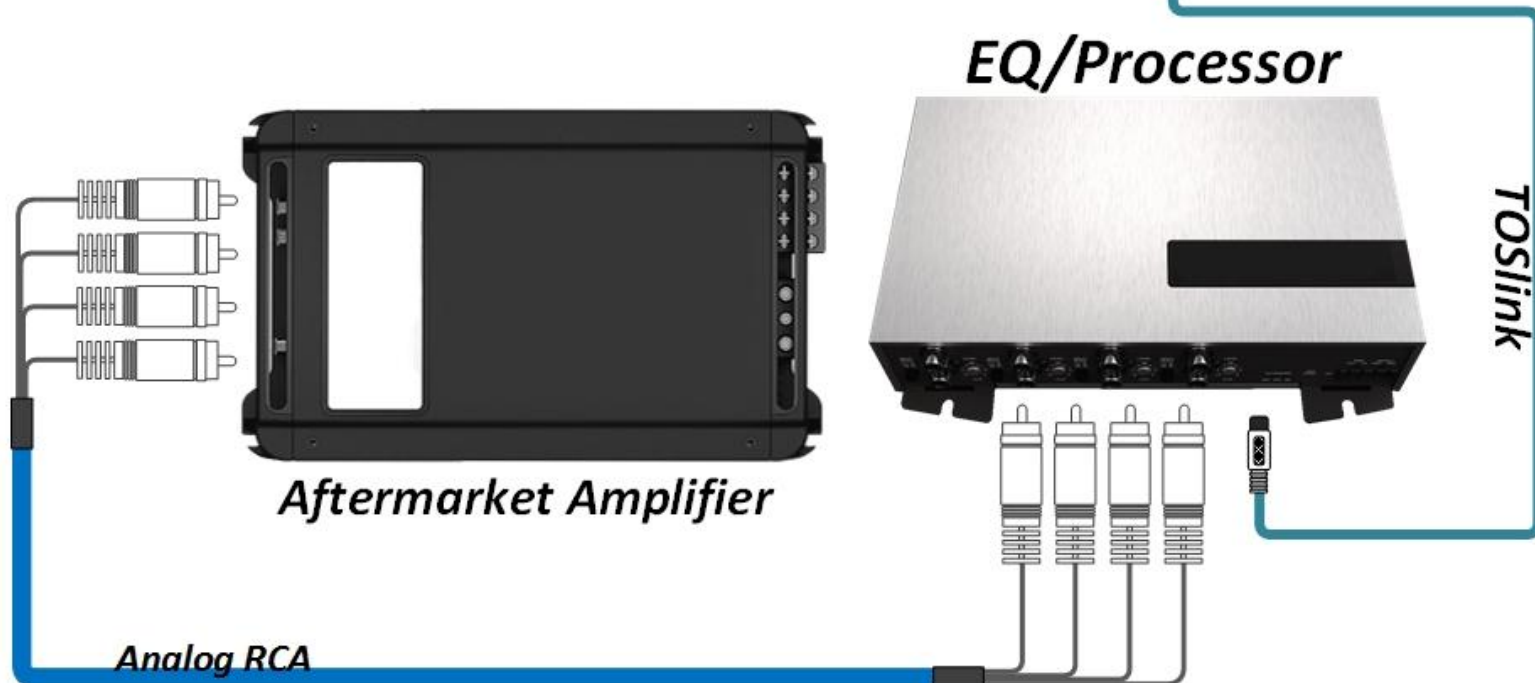
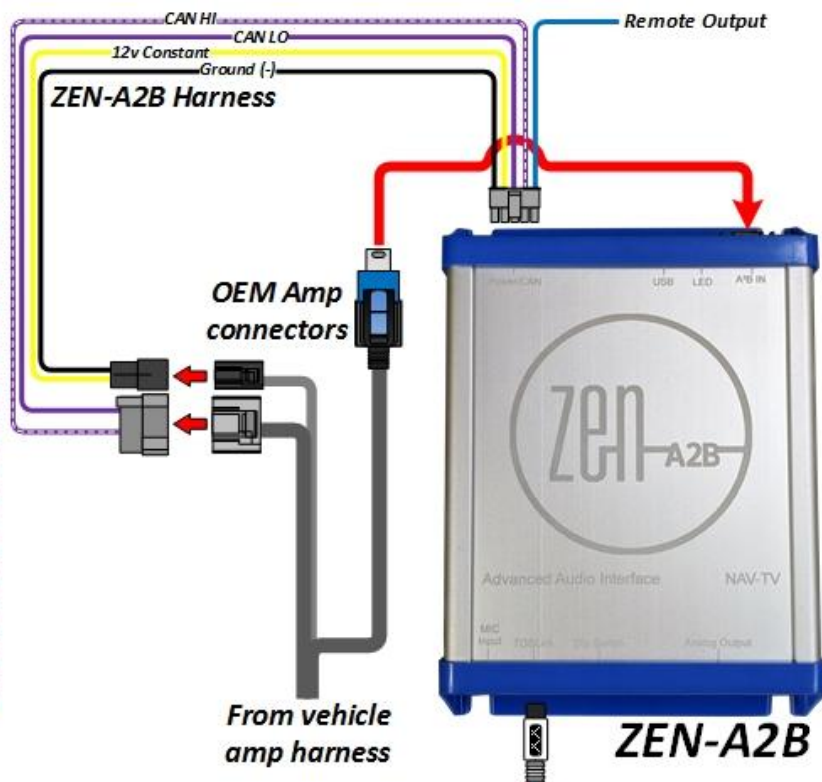
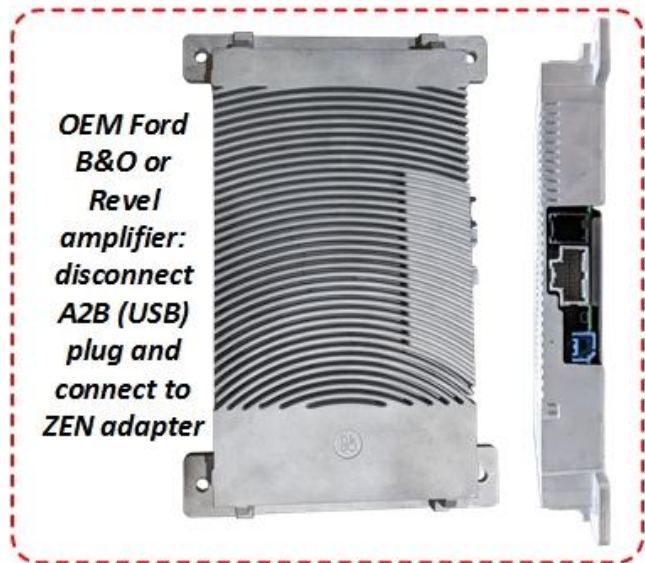
**For ZEN-A2B installations, the factory amplifier MUST be removed or disconnected.**

**OEM Ford B&O or Revel amplifier: disconnect A2B (USB) plug and connect to ZEN adapter**



## ZEN-F25 System Layout (digital TOSLINK)

**For ZEN-A2B installations,  
the factory amplifier MUST  
be removed or disconnected.**



## ZEN configuration: Analog Outputs (online tool)

To access the ZEN online configuration tool, first connect the provided USB cable from the ZEN module to the computer. Open an internet browser and navigate to [zen/](http://zen/) *If using a PC* or [zen.local/](http://zen.local/) *if using a Mac*. Wait for the configuration page to load. Adjust settings as required for the installation.

## NOTES:

- Default values for the ZEN module are shown below (Tones Mix on ALL: 20%, Phone Mix on front only: 100%)
- If the ZEN module is still connected to the vehicle while configuring via the web-tool, a door chime will be generated and repeated 4 times upon adjustment. To test Notification Mix volume level, go to **SETTINGS**, **BLUETOOTH**, then select 'Add a Bluetooth Device'. Selecting this emits an audible OEM message which can be adjusted via the mix slider.















**Strip Audio** sends only door chimes/ safety alerts out on that RCA channel (removes all music). If music must play through the channel, you must use **Tones Mix**. Adjust tone output level to suit. **NOTE: this setting CANNOT be used simultaneously with 'Tones Mix'.**

**Tones Mix** channels will play audio normally until a door chime or other safety alert is requested, at which time the tone will be heard along with the audio on that channel. Adjust tone output level to suit.

**Alert Mix** channels will play audio normally until a notification tone is received/active, at which time the audio will *attenuate* and the tone will be output on that channel. Adjust output level to suit. *Notification tone example: NAV turn prompts, certain CarPlay notifiers, etc*

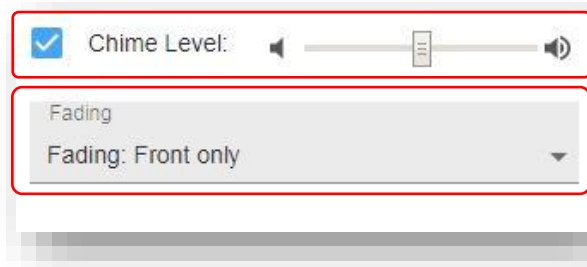
Use the **LINK** button to simultaneously adjust all the levels (for front & front center, or rear). Select, then adjust the slider to suit.

Use the **UNLINK** button to separately adjust each channel level. Select, then adjust the slider to suit.

| SELECTED CONFIGURATION |              |                          |   |
|------------------------|--------------|--------------------------|---|
| Full Range Front       |              | Strip Audio              | Tones Mix                              |
| Output 1               | Front Left   | <input type="checkbox"/> | <input checked="" type="checkbox"/>    |
| Output 2               | Front Right  | <input type="checkbox"/> | <input checked="" type="checkbox"/>   |
| Output 3               | Front Left   | <input type="checkbox"/> | <input checked="" type="checkbox"/>  |
| Output 4               | Front Right  | <input type="checkbox"/> | <input checked="" type="checkbox"/>  |
| Output 5               | Front Left   | <input type="checkbox"/> | <input checked="" type="checkbox"/>  |
| Output 6               | Front Right  | <input type="checkbox"/> | <input checked="" type="checkbox"/>  |
| Full Range Rear        |              | Strip Audio              | Tones Mix                            |
| Output 7               | Rear Left    | <input type="checkbox"/> | <input checked="" type="checkbox"/>  |
| Output 8               | Rear Right   | <input type="checkbox"/> | <input checked="" type="checkbox"/>  |
| Output 9               | Rear Left    | <input type="checkbox"/> | <input checked="" type="checkbox"/>  |
| Output 10              | Rear Right   | <input type="checkbox"/> | <input checked="" type="checkbox"/>  |
| Center and Subwoofer   |              | Strip Audio              | Tones Mix                            |
| Output 11              | Front Center | <input type="checkbox"/> | <input type="checkbox"/>             |
| Output 12              | Subwoofer    |                          |   |

## ZEN Configuration: Digital Output (online tool continued)

Since the digital TOSLINK is a single stereo output, advanced adjustments are limited.



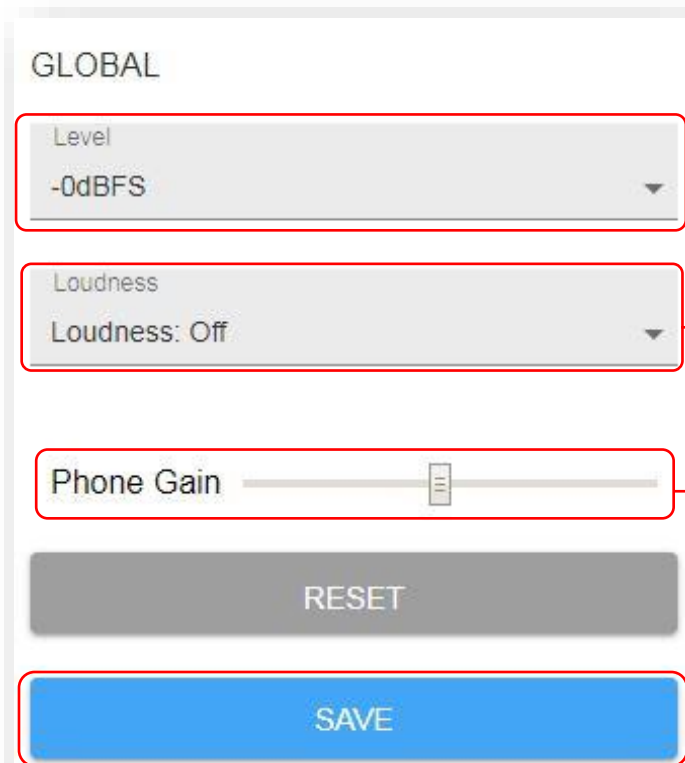
**For Digital TOSLINK output, Tones and Chimes** will mimic factory output on the front and rear channels. Adjust output level to suit.

Fading: Front only  
Non-Fading

Once complete, select **SAVE** to store the settings in the ZEN module.

## ZEN Configuration: GLOBAL Adjustments (online tool continued)

- Adjust global **Output Level** (attenuation) to desired level.
- Adjust **Loudness Off or On**.
- Adjust global **Phone Gain** if required.



-0dBFS  
-6dBFS  
-12dBFS

**Loudness: Choose OFF or ON.** When on, all frequencies are very slightly boosted until 50% volume is reached.

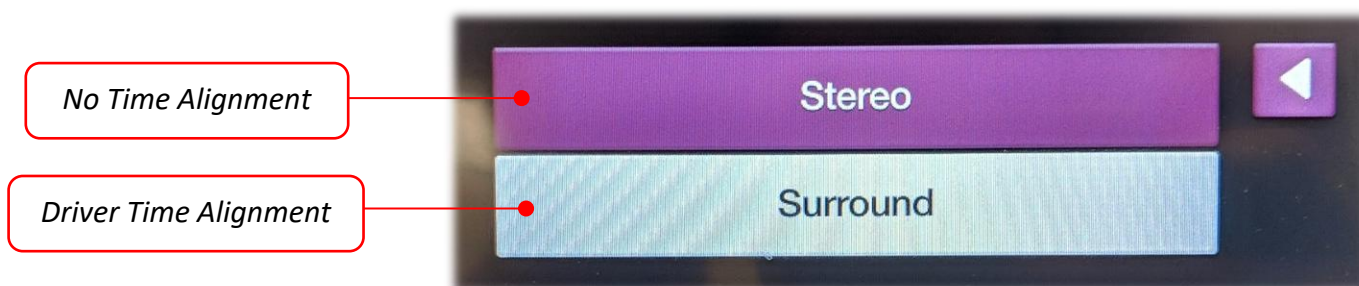
**Phone Gain** is only required if, after maximum (or minimum) volume for *Phone Mix* is set, the volume is still not loud enough (or soft enough). This setting can be used for both TOSLINK or Analog.

**Once complete, select SAVE to store the settings in the ZEN module.**



## ZEN-F25 Time Alignment (Analog only)

- The DSP12A-A2B features a built-in time alignment feature that can be activated on-the-fly, through an OEM menu setting. *To activate the (driver) time alignment, go to **Settings, Sound Settings**, then choose **Sound Mode**. Choose **Surround** to use driver time alignment.*



## ZEN Updates

Updating the DSP12A-A2B interface is performed using the provided USB cable and an internet-connected PC. Connect the USB cable from the ZEN module to the PC, and with an internet browser go to [navtvdevice.com](http://navtvdevice.com). Once there, let the page load and find the module. The unit will update automatically to the latest software (be patient). If required, you may roll back to a previous software version as well.

**NAV-TV** Device Updater console  
INTERFACING THE FUTURE

Return To Main Site Basic Mode

Firmware name: **ZEN-A2B**  
Device type: **DSP12A-A2B**  
Serial: **#184110**  
Firmware version: **3.0.21**

### Available firmware

**Recommended firmware**

✓ You have the latest firmware version

**Alternative firmware**

| Firmware name | Device type | Firmware version |                                       |
|---------------|-------------|------------------|---------------------------------------|
| ZEN-A2B       | DSP12A-A2B  | 3.0.19           | <input type="button" value="Update"/> |
| ZEN-A2B       | DSP12A-A2B  | 3.0.14           | <input type="button" value="Update"/> |

**Roll back to earlier SW**

## ZEN-F25 Technical Specifications

| <i>Hardware &amp; Software</i>  |                               |
|---------------------------------|-------------------------------|
| Current HW version:             | -- 3r0 --                     |
| Current SW version:             | 4.0.11 (website updater only) |
| Compatible SW (update) OS:      | Windows 7 (64 bit), 8, 10, 11 |
| <i>INPUT</i>                    |                               |
| Digital Input                   | A <sup>2</sup> B Twisted Pair |
| <i>OUTPUT</i>                   |                               |
| Digital Outputs:                | TOSLINK                       |
| Digital Outputs supported:      | 24bit/48kHz                   |
| Frequency Response (digital):   | 18Hz – 24kHz                  |
| Analog Outputs:                 | 12 channels (RCA)             |
| Output Voltage <i>Peak</i> :    | 6v                            |
| Output Voltage <i>RMS</i> :     | 2.1v                          |
| Analog Output Type:             | Single-Ended                  |
| S/N Ratio (analog):             | 114dB                         |
| Frequency Response (analog):    | 18Hz – 24kHz                  |
| THD+N @ -1dBFS                  | -94dB                         |
| DAC                             | 48kHz 32bit                   |
| DSP                             | 32bit Floating Point          |
| Delay (Time Alignment)          | Selectable                    |
| <i>Power Supply</i>             |                               |
| Current Consumption Stand-by    | <1 mA                         |
| Current Consumption Operational | 350 mA MAX                    |
| Operational Voltage             | 7V – 20V DC                   |
| Amp Turn-On Output              | Automatic                     |
| Amp Turn-On Voltage             | V-batt                        |
| Amp Turn-On Current Limitation  | 500mA                         |
| <i>Other</i>                    |                               |
| Dimensions:                     | 4"x5"x1 3/8"                  |
| Weight:                         | 10 oz                         |

## Notes

- With A<sup>2</sup>B, if the power or (A2B) is ever removed from the ZEN module, the vehicle will require a CAN reset once or twice to regain normal OEM functionality (chimes, etc). CAN-reset procedure:
  1. Turning off ignition
  2. Close all doors
  3. Let the vehicle 'go to sleep' for ~10 minutes (without touching it)
  4. Return and test
- **VITAL:** For installations with this ZEN processor, make certain that any added amplifier's *ground* resistance (reference vehicle battery ground) **does not exceed 1 ohm**.
- If engine noise is introduced through system with the ZEN, match the interface's ground wire to the aftermarket amplifier's ground to eliminate any ground loop.
- If you've installed a third-party DSP (receiving signal from the ZEN, before the amplifier) and you're having issues with *audio bleeding from one channel to another, echoing Bluetooth phone calls or any other signal processing issues*, **rule out the ZEN first by temporarily bypassing the third-party DSP and running signal directly from the ZEN to the amplifier(s) and verify the problem still exists before calling technical support.**

