Toyota **DSP Interface With Pre-Wired Harness**

**2012–2016**

**INTERFACE FEATURES**

- Includes a DSP (Digital Signal Processor)
- 15 Band graphic EQ
- 4 inputs and 6 individually assignable outputs
- Independent equalization for front, rear, and sub
- Selectable low pass, band pass, and high pass filters
- Selectable crossover slopes; 12db, 24db, 36db, 48db
- Each channel can be delayed independently up to 10ms
- Clipping detection and limiting circuits
- Designed for non-amplified models
- Easy behind the radio installation with pre-wired harness
- Internal header port for adding interface modules
- Bass knob included for level control of subwoofer amp
- Settings adjusted via Bluetooth® in a smart device application (tablet or mobile phone), compatible with both Android and Apple devices
- Read, write, and store configurations for future recall
- Password protect feature available in the mobile app
- Micro-B USB updatable

**INTERFACE COMPONENTS**

- AXDSPL-TY4 interface
- AXDSPL-TY4 interface harness
- AXDSPL-TY4 vehicle T-harness • Bass knob

**APPLICATIONS**

Visit axxessinterfaces.com for current application list

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**TOOLS & INSTALLATION ACCESSORIES REQUIRED**

- Crimping tool and connectors, or solder gun, solder, and heat shrink • Tape • Wire cutter
- Zip ties • Multimeter

**Google Play Store**

iOS 12.1 or higher

**Apple App Store**

iOS 12.1 or higher
Adding a sub to a factory system:
This feature offers the ability to add a subwoofer to a factory system. (refer to page 3)

Adding a full-range amp & sub to a factory system:
This feature offers the ability to add a full-range amp and sub to a factory system. (refer to page 4)

16-pin header port:
Inside the interface is a 16-pin header port for adding optional modules (sold separately). Page 5 and 6 will show the installation and use of these modules.

- AXDSPL-BT - Bluetooth streaming interface
- AXDSPL-SP - Toslink digital output

**Note:** The interface provides a 12-volt 1-amp output to turn on aftermarket amp(s). If installing multiple amps, an SPDT automotive relay will be required if the amp turn-on current of all amps combined exceeds 1-amp. Use Metra part number E-123 (sold separately) for best results.

**INSTALLATION OPTIONS**

**INSTALLATION**

1. Remove the factory radio †, then unplug all connectors.
2. Install the AXDSPL-TY4 vehicle T-harness to the vehicle and make all necessary connections, but leave the amp turn-on wire disconnected.
3. Plug the AXDSPL-TY4 vehicle T-harness to the AXDSPL-TY4 interface.
4. Plug the AXDSPL-TY4 interface harness to the AXDSPL-TY4 interface.
5. Download and install the AX-DSP-X app from the Google Play Store or Apple App Store.
6. Cycle the ignition on.
7. Open the app then select the Bluetooth Connection tab. Follow the instructions to pair the mobile device to the interface. Refer to page 6 for more information.
8. Scroll to the Configuration tab then select the vehicle type. Press the Lock Down ‡ button to save the configuration. Refer to page 7 for more information.
9. Connect the amp turn-on wire.
10. Adjust the settings in the app as desired. Press the Lock Down ‡ button to save any new configurations.

† Refer to Metra online for dash disassembly. If Metra makes a dash kit for the vehicle, disassembly will be within those instructions.

‡ Anytime the interface is locked down the key must be cycled off then back on
These outputs can be used for additional sub amps, or for adding onto the system at a later date.

RCA Jacks (sold separately)

Any remaining wires tape off and disregard

Blue/White - Amp Turn-On Wire

Keep Connected

Vehicle T-Harness

Factory Radio Harness

Interface Harness

Interface

Black - Ground
Orange - Control

Bass Knob

Any remaining wires tape off and disregard

REV. 11/3/2020 INSTAXDSPL-TY4 3
ADDING A FULL-RANGE AMP & SUB TO A FACTORY SYSTEM

Factory Radio Harness

Vehicle T-Harness

Interface Harness

Factory Amp

Bass Knob

Black - Ground
Orange - Control

Any remaining wires
tape off and disregard

Factory Radio

Unplug connector

Any remaining wires
tape off and disregard

Interface Harness

An SPDT relay, Metra part number E-123, is required if the amp turn-on current of all amps exceeds 1-amp.

Cut the male connector off and connect speaker wires to amp

<table>
<thead>
<tr>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>Front Left +</td>
</tr>
<tr>
<td>White/Black</td>
<td>Front Left -</td>
</tr>
<tr>
<td>Gray</td>
<td>Front Right +</td>
</tr>
<tr>
<td>Gray/Black</td>
<td>Front Right -</td>
</tr>
<tr>
<td>Green</td>
<td>Rear Left +</td>
</tr>
<tr>
<td>Green/Black</td>
<td>Rear Left -</td>
</tr>
<tr>
<td>Purple</td>
<td>Rear Right +</td>
</tr>
<tr>
<td>Purple/Black</td>
<td>Rear Right -</td>
</tr>
</tbody>
</table>

Blue/White - Amp Turn-On Wire

Black - Ground
Orange - Control

If equipped, bypass and remove

Any RCA Jacks (sold separately)
The AXDSPL-BT Bluetooth streaming interface can be used to stream media directly to the interface.

While streaming media the volume on the phone will be used. As an option, the AXBK-1 (sold separately) can be used to control the volume.

Note: The bass knob included with the AXDSPL-TY4 can be used if it will not be used to control a subwoofer.

1. **Important!** Unplug the interface from the vehicle.
2. Remove (4) Phillips screws securing the interface, then remove the top cover, exposing the circuit board within.
3. Locate the 16-pin header on the circuit board.
4. **Important!** Referencing how the AXDSPL-BT is laid out in the picture, carefully line up the header pins to the interface. Gently press down to secure.
   
   Note: Both interfaces may be damaged if installed wrong.
5. Reinstall the top cover to complete the installation.

**AXBK-1 Installation:**

6. Connect the Brown wire from the interface to the Orange wire from the AXBK-1. Ground the Black wire from the AXBK-1.

Continued on the next page
**TOSLINK DIGITAL OUTPUT**

- The AXDSPL-SP Toslink digital output can be used for adding a digital output to the interface.

1. **Important!** Unplug the interface from the vehicle.
2. Remove (4) Phillips screws securing the interface, then remove the top cover, exposing the circuit board within.
3. Locate the 16-pin header on the circuit board.
4. **Important!** Carefully line up the header pins to the AXDSPL-SP, with the Toslink port facing outward. Gently press down to secure.
   - **Note:** Both interfaces may be damaged if installed wrong.
5. Reinstall the top cover provided with the AXDSPL-SP to complete the installation.
Setup Instructions

Using the vehicle specific harness, install the AX-DSP. The high level outputs from the OEM radio go to the inputs of the AX-DSP. The AX-DSP outputs are low level and should be connected to the amplifier inputs.

- Power on the system, and verify audio to the front (left and right), rear (left and right), and Subwoofer.
- Set the OEM radio bass and treble controls for flat frequency response.
- Set the left/right balance to center.
- Set the front/rear fader to center.

Detailed installation instructions are available on-line. Click the button below to view the instructions.

• General information tab for installing the interface.

Continued on the next page
Bluetooth Connection

- **Scan** - Press this button to start the Bluetooth pairing process, then select the interface once it is found. “Connected” will appear in the top left corner of the app once paired.

  **Note:** The ignition must be cycled on during this process.

- **Disconnect** - Disconnects the interface from the app.

  ![Available Devices]

  To connect to the AX-DSP, make sure the ignition is in the on position and the AX-DSP is powered up.

  Hit the SCAN Button and select the AX-DSP from the available devices.

  Confirmation that you are connected to the DSP will show in the top left corner of the screen.

  To disconnect from the AX-DSP hit the Disconnect button.

Continued on the next page
**Configuration**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Identify</strong></td>
<td>Click this button to send a test tone to the front left speaker*.</td>
</tr>
<tr>
<td></td>
<td>* Only installations using the front left output (white RCA jack).</td>
</tr>
<tr>
<td><strong>Reset to Defaults</strong></td>
<td>Resets the DSP customization settings, will not reset vehicle type. During</td>
</tr>
<tr>
<td></td>
<td>the reset process, the amplifiers will shut off for 5–10 seconds, and then</td>
</tr>
<tr>
<td></td>
<td>turn back on once completed.</td>
</tr>
<tr>
<td><strong>Vehicle Type</strong></td>
<td>Select the type of vehicle the AX-DSP is installed in</td>
</tr>
<tr>
<td><strong>Lock Down</strong></td>
<td>Stores the current configuration into the AX-DSP</td>
</tr>
<tr>
<td><strong>Save Config</strong></td>
<td>Saves the current configuration to your device</td>
</tr>
<tr>
<td><strong>Recall Config</strong></td>
<td>Recalls a configuration from your device and applies the recalled</td>
</tr>
<tr>
<td></td>
<td>configuration to the AX-DSP</td>
</tr>
<tr>
<td><strong>About</strong></td>
<td>Displays Information about this App and the AX-DSP</td>
</tr>
<tr>
<td><strong>Set Password</strong></td>
<td>Changes password for accessing the AX-DSP</td>
</tr>
</tbody>
</table>

- **Identify** - Click this button to send a test tone to the front left speaker*.
- **Reset to Defaults** - Resets the interface to factory settings. During the reset process the amp(s) will shut off for 5-10 seconds.
- **Vehicle Type** - Select the vehicle type from the drop down box, then click the apply button.
- **Lock Down** - Click this button to save the selected settings.

**Attention!** This must be done before closing the app or cycling the key otherwise all new changes will be lost!

- **Save Configuration** - Saves the current configuration to the mobile device.
- **Recall Configuration** - Recalls a configuration from the mobile device.
- **About** - Displays information about the app, vehicle, interface, and mobile device.
- **Set Password** - Assign a 4-digit password to lock the interface. If no password is desired, use “0000”. This will clear out any currently set password. It is not necessary to lock down the interface when setting a password.

**Note:** A 4-digit only password must be chosen otherwise the interface will show “password not valid for this device”.

*Continued on the next page*
**Outputs**

- **Location** - Location of speaker.
- **Group** - Used to join channels together for simple equalization. Example, left front woofer/midrange and left front tweeter will be considered simply left front. The letter M indicates the speaker assigned as the master speaker.
- **Invert** - Will invert the phase of the speaker.
- **Mute** - Will mute desired channel(s) for tuning individual channels.
Crossover Adjust

- Select the desired crossover filter per channel, low pass, band pass, or high pass.
- Select the desired crossover slope per channel, 12db, 24db, 36db, or 48db.
- Select the desired crossover frequency per channel, 20hz to 20khz.

**Note:** The front and rear channels default to a 100Hz high pass filter to keep the low frequency signals out. If a subwoofer is not being installed, change the front and rear crossover points down to 20Hz for a full range signal, or to the lowest frequency the speakers will play down to.

---

### Crossover Adjust

<table>
<thead>
<tr>
<th>Channel</th>
<th>Crossover Filter</th>
<th>Crossover Slope</th>
<th>Crossover Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left Front</td>
<td>Low Pass</td>
<td>12db</td>
<td>100 Hz</td>
</tr>
<tr>
<td></td>
<td>Band Pass</td>
<td>24db</td>
<td></td>
</tr>
<tr>
<td></td>
<td>High Pass</td>
<td>36db, 48db</td>
<td></td>
</tr>
<tr>
<td>Right Front</td>
<td>Low Pass</td>
<td>12db</td>
<td>100 Hz</td>
</tr>
<tr>
<td></td>
<td>Band Pass</td>
<td>24db</td>
<td></td>
</tr>
<tr>
<td></td>
<td>High Pass</td>
<td>36db, 48db</td>
<td></td>
</tr>
<tr>
<td>Left Rear</td>
<td>Low Pass</td>
<td>12db</td>
<td>100 Hz</td>
</tr>
<tr>
<td></td>
<td>Band Pass</td>
<td>24db</td>
<td></td>
</tr>
<tr>
<td></td>
<td>High Pass</td>
<td>36db, 48db</td>
<td></td>
</tr>
<tr>
<td>Right Rear</td>
<td>Low Pass</td>
<td>12db</td>
<td>100 Hz</td>
</tr>
<tr>
<td></td>
<td>Band Pass</td>
<td>24db</td>
<td></td>
</tr>
<tr>
<td></td>
<td>High Pass</td>
<td>36db, 48db</td>
<td></td>
</tr>
</tbody>
</table>

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Continued on the next page
Equalizer Adjust

- All channels can be adjusted independently within this tab with 15 bands of available equalization. It is best to tune this by using an RTA (Real Time Analyzer).

- The Gain slider on the far left is for the channel selected.
Delay Adjust

- Allows a delay of each channel. If a delay is desired, first measure the distance (in inches) from each speaker to the listening position, then enter those values to the corresponding speaker. Add (in inches) to the desired speaker to delay it.

<table>
<thead>
<tr>
<th>Distance from each speaker to 'Head' position (in inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left Front</td>
</tr>
<tr>
<td>Right Front</td>
</tr>
<tr>
<td>Left Rear</td>
</tr>
<tr>
<td>Right Rear</td>
</tr>
<tr>
<td>Sub Woofer</td>
</tr>
</tbody>
</table>

Measure the distance from each speaker to the desired 'Head' position and enter those values in the corresponding boxes. Maximum distance is 99".
## Inputs/Levels

<table>
<thead>
<tr>
<th>Chime Volume</th>
<th>Clipping Level</th>
<th>Amp Turn On</th>
<th>Subwoofer Input</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Chime Volume - Not applicable in this application.</td>
<td>• Use this feature to protect sensitive speakers like tweeters from being driven past their capabilities. If the output signal of the interface clips the audio will be reduced by 20dB. Turning down the stereo will allow the audio to come back at a normal level. The sensitivity of this feature can be adjusted to the listening preference of the user.</td>
<td>• Will turn the amp(s) on when an audio signal is detected, and keep on for 10 seconds after the last signal. This ensures the amp(s) won’t shut off between tracks.</td>
<td>• Select Front + Rear</td>
</tr>
<tr>
<td>• Clipping Level</td>
<td>• The AX-DSP can detect clipping of the audio signals and reduce the level for a period of time to prevent damage to the speakers.</td>
<td>• Will keep the amp(s) on as long as the ignition is cycled on.</td>
<td>• Select Subwoofer</td>
</tr>
<tr>
<td>• Amp Turn On</td>
<td>• Can be used to delay audio output to avoid turn-on pops.</td>
<td>• Turn on Delay</td>
<td>• The Subwoofer output can be driven from the sum of the Front and Rear inputs, or it can be from the Subwoofer input only.</td>
</tr>
</tbody>
</table>
Locking Down Data

Last and the most important. You must lock down your configuration and cycle the key!!!
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Metra recommends MECP certified technicians

SPECIFICATIONS

Input Impedance
1M Ohm

Input Channels
6

Input Options
High Level or Low Level

Input Type
Differential balanced

Input Voltage
0 - 28-volts (peak-to-peak)

Input Voltage (low level range)
0 - 4.9-volts (peak-to-peak)

Output Channels
6

Output Voltage
Up to 5-volts RMS

Output Impedance
50 Ohms

Equalizer Type
15 Band Graphic EQ, +/- 10dB

THD
<0.03%

Frequency Response
20Hz - 20kHz

Crossover Filter
Low pass, band pass, high pass

Crossover Frequency
Selectable 20Hz to 20kHz

Crossover Slope
12db/24db/36db/48db

Crossover Type
Linkwitz-Riley

Sampling
48kHz

S/N Ratio
105dB @ 5-volts RMS

Operating Voltage
10-16 volts DC

Standby Current Draw
7mA

Operation Current Draw
150mA

Adjustments/Controls
Application via Bluetooth

Remote Output
12 volts DC (signal sense or with ignition)

Having difficulties? We’re here to help.

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Or via email at:
techsupport@metra-autosound.com

Tech Support Hours (Eastern Standard Time)
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