**Axxess 6-Channel Digital Signal Processor with Water Resistant Enclosure**

**INTERFACE COMPONENTS**
- AXDSP-L circuit board
- AXDSPL-WR harness (16-pin & 20-pin, with gaskets)
- AXDSPL-WR enclosure
  - Case
  - Cap (with O-ring)

**INTERFACE FEATURES**
- 15 Band graphic EQ
- 4 inputs and 6 individually assignable outputs
- Independent equalization for front, rear, and sub
- Independent crossover for front, rear, and sub
- Selectable slope (12, 24, 36, or 48db per octave)
- Front and rear channels can be delayed independently up to 10ms
- Easy behind the radio installation in most applications
- Water resistant enclosure with zip tie mounts included
- Can be used with OE and aftermarket radios
- Chime control for GM/Chrysler vehicles
- Clipping detection and limiting circuits

- Internal header port for adding a Bluetooth interface module
- Bass knob included
- Retains OE voice prompts (SYNC® and OnStar®)
- Retains factory chimes including parking sensor and cross path detection alerts
- 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

**TOOLS & INSTALLATION ACCESSORIES REQUIRED**
- Crimping tool and connectors, or solder gun, solder, and heat shrink
- Tape • Wire cutter
- Zip ties • Multimeter

**APPLE APP STORE**
- iOS 12.1 or higher

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REV. 11/3/20 INSTAXDSPSPL-WR
The AXDSPL-WR interface can be used with either an aftermarket or factory system. The interface can grow as your stereo system grows. Start off by adding a subwoofer, then add on from there. Simply reference the Installation Options page to change the interface to the new system. All 6 channels of the interface can be assigned however needed for the installation at hand. If 6 channels of a subwoofer signal is needed, the interface can do it. In the following section, Installation Options, choose the installation type, then either click on the hyperlink, or reference that page number.

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.

If using the interface to install just a sub amp, the factory amp can be retained for mids/highs. If installing the interface in models with a factory amp, and bypassing the amp, the amp must be unplugged.

In most cases the CAN Bus wires need to be connected in order for the interface to communicate with the vehicle to turn on and provide an amp turn-on output.

Inside the interface is a 16-pin header port for adding an optional Bluetooth module, part number AXDSP-BT (sold separately). Page 7 will show the installation and use of this module.

### Aftermarket radio system:

The AXDSPL-WR interface can be used with an aftermarket radio to improve the overall listening experience for car audio enthusiasts. Installers will connect the RCA inputs from the interface to the outputs from the aftermarket radio; Front, Rear. When using an aftermarket radio with the interface, General must be chosen for the vehicle type. (refer to page 5)

### Stand-alone Bluetooth system:

The AXDSPL-WR interface and AXDSP-BT Bluetooth module can be used together as a stand-alone system and used in just about any 12-volt DC application. Perfect applications would be classic car installations where the dashboard cannot be altered, or in UTV vehicles. This can even be used inside a home with a 12-volt DC power supply. The options are endless and only limited by ones creativity. (refer to page 6)
1. Install the **AXDSPL-WR harness** and make all necessary connections to the radio and vehicle, but leave the amp turn-on wire disconnected.

2. With the arrow stamped onto the cap facing upwards, push the 16-pin connector from the **AXDSPL-WR harness** into the left side of the cap. The locking clip on the connector should face upward. Make sure the gasket is seating properly in the cap. (Figure A)

3. With the arrow stamped onto the cap still facing upwards, push the 20-pin connector from the **AXDSPL-WR harness** into the right side of the cap. The locking clip on the connector should face upward. Make sure the gasket is seating properly in the cap. (Figure A)

4. Plug the 16-pin and 20-pin connectors from the **AXDSPL-WR harness** into the **AXDSP-L circuit board**. (Figure A)

5. Slide the assembly into the case, then click it shut. Zip-tie the enclosure to a secure location. Make sure the Axxess logo is facing up to further ensure that no outside elements can enter the enclosure.

*Continued on the next page*
6. Download and install the AXDSP-X app from the Google Play Store or Apple App Store.

7. Open the app then select the Bluetooth Connection tab. Follow the instructions to pair the mobile device to the interface. Refer to page 9 for more information. (Figure B)

7. Scroll to the Configuration tab then select the vehicle type. Press the Lock Down button to save the configuration. Refer to pages 10-11 for more information. (Figure C)

8. 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.

Continued on the next page
Do not use amp turn-on from aftermarket radio!

Any remaining wires tape off and disregard

Blue/White - Amp Turn-On Wire

Black - Chassis Ground
Orange - Control Wire

RCA Jacks (sold separately)

An SPDT relay, Metra part number E-123, must be used if more than one amplifier will be installed

Black - Chassis Ground
Yellow - Battery Power
Red - Accessory Power

INPUT 5
INPUT 6

Black - Chassis Ground
Orange - Control Wire

Any remaining wires tape off and disregard

Blue/White - Amp Turn-On Wire
**STAND-ALONE BLUETOOTH SYSTEM**

- **Do Not Connect Any remaining wires tape off and disregard**
- **Blue/White - Amp Turn-On Wire**
- **Black - Chassis Ground**
  - **Brown - Control Wire**
- **Black - Chassis Ground**
  - **Orange - Control Wire**
- **An SPDT relay, Metra part number E-123, must be used if more than one amplifier will be installed**
- **ABK-1 (sold separately)**
- **RCA Jacks (sold separately)**
- **Volume Control**
- **Bass Knob**
- **Interface & Enclosure**
- **Input 5**
  - **Input 6**
- **RCA Jacks**
  - **Black - Chassis Ground**
  - **Orange - Control Wire**
  - **Brown - Control Wire**
- **Red - Accessory Power**
- **Yellow - Battery Power**
- **Volume Control**
- **Sub Control**
- **RCA Jacks**
The AXDSPL-BT Bluetooth interface will be used for adding a Bluetooth interface to the AXDSPL-WR for playing music files directly to the interface.

While playing music 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-WR can also be used if it will not be used to control a subwoofer.

1. **Important!** Unplug the AXDSPL-WR from the vehicle.
2. Locate the 16-pin header on the circuit board.
3. **Important!** Referencing how the Bluetooth interface is laid out in the picture, carefully line up the header pins to the AX-DSPL-BT Bluetooth interface. Gently press down to secure.
   
   **Note:** Both interfaces may be damaged if installed wrong.

**AXBK-1 Installation:**

4. Connect the Brown wire from the AXDSPL-WR harness, to the Orange wire from the AXBK-1. Ground the Black wire from the AXBK-1.

Continued on the next page
MOBILE APP

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.

The AXDSPL-WR uses the same app as the AXDSP-X. Only items pertaining to the AXDSPL-WR will be shown.

- General information tab for installing the interface.

Continued on the next page
### Bluetooth Connection

**Not Connected**

<table>
<thead>
<tr>
<th>SETUP INSTRUCTIONS</th>
<th>BLUETOOTH CONNECTION</th>
<th>CONFIGURATION</th>
<th>OUTPUTS</th>
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<tbody>
<tr>
<td>Crossover Adjust</td>
<td>Equalizer Adjust</td>
<td>Delay Adjust</td>
<td>Levels</td>
</tr>
</tbody>
</table>

**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.

- **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 interface must be powered during this process.

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

*Continued on the next page*
MOBILE APP (CONT.)

Configuration

Connected to AX-DSP-L Meta 38115946 (41)

- **Identify** - Click this button to confirm that the interface is connected properly. If so, a chime will be heard from the front left speaker*. If not, the interface will be reconnected.
  
- **Reset to Defaults** - Resets the DSP settings to factory settings. During the reset process, the amplifiers will shut off for 5-10 seconds.

- **Vehicle Type** - Select the vehicle type from the drop-down box, select either **Without OE Amplifier** or **With OE Amplifier**, then click the apply button.

- **Lock Down** - Click this button to save the selected settings. **Attention!** This button must be selected before closing the app or cycling the key otherwise all settings will be lost.

- **Save Configuration** - Saves the current configuration to the mobile device.

- **Recall Configuration** - Recalls a configuration from the mobile device.

*Only installations where the interface is connected to a front left speaker.

Connected to AX-DSP-L Meta 38115946 (41)

- **Identify** - Click this button to identify the AX-DSP; the chimes will play

- **Reset to Defaults** - Resets the DSP customization settings, will not reset vehicle type. During the reset process, the amplifiers will shut off for 5-10 seconds, and then turn back on once completed.

- **Vehicle Type** - Select the type of vehicle the AX-DSP is installed in

- **Lock Down** - Stores the current configuration into the AX-DSP

- **Save Config** - Saves the current configuration to your device

- **Recall Config** - Recalls a configuration from your device

- **About** - Displays information about the AX-DSP

- **Set Password** - Changes password for accessing the AX-DSP

- **Clear Phones** - Clears list of phones that are paired for Bluetooth Streaming

**Continued on the next page**
**Configuration (Cont.)**

Connected to AX-DSP-L Metro 3B115948 (1)

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Outputs</th>
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</thead>
<tbody>
<tr>
<td>SETUP INSTRUCTIONS</td>
<td>CONFIGURATION</td>
</tr>
<tr>
<td>CROSSOVER ADJUST</td>
<td>EQUALIZER ADJUST</td>
</tr>
</tbody>
</table>

- **Identify**
  - Click this button to identify the AX-DSP; the chimes will play

- **Reset to Defaults**
  - Resets the DSP customization settings, will not reset vehicle type. During the reset process, the amplifiers will shut off for 5–10 seconds, and then turn back on once completed.

- **Vehicle Type**
  - Select the type of vehicle the AX-DSP is installed in

- **Lock Down**
  - Stores the current configuration into the AX-DSP

- **Save Config**
  - Saves the current configuration to your device

- **Recall Config**
  - Recalls a configuration from your device

- **About**
  - Displays information about this App and the AX-DSP

- **Set Password**
  - Changes password for accessing the AX-DSP

- **Clear Phones**
  - Clears list of Phones that are paired for Bluetooth Streaming

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- **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”.

- **Clear Phones** - Clears phones paired from memory

*Continued on the next page*
### Output Channels

- **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 denotes 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.

### Outputs

<table>
<thead>
<tr>
<th>#</th>
<th>Location</th>
<th>Group</th>
<th>Invert</th>
<th>Mute</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Left Front</td>
<td>None</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>2</td>
<td>Right Front</td>
<td>None</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>3</td>
<td>Left Rear</td>
<td>None</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>4</td>
<td>Right Rear</td>
<td>None</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>5</td>
<td>Sub Woofer</td>
<td>None</td>
<td>■</td>
<td>■</td>
</tr>
</tbody>
</table>
If installing a subwoofer, the front and rear outputs will 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.

Selecting High Pass and Low Pass will provide one crossover frequency adjustment. Band Pass should only be chosen if installing just front speakers, with one dedicated amp for the woofers/mids, a second dedicated amp for the tweeters, along with a subwoofer.

Select the desired crossover slope, 24db, 36db, or 48 db. Higher is steeper.
Equalizer Adjust

- The front, rear, and sub channels can be adjusted independently within this tab with 15 bands of equalization available. 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.

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### Delay Adjust

<table>
<thead>
<tr>
<th>SETUP INSTRUCTIONS</th>
<th>BLUETOOTH CONNECTION</th>
<th>CONFIGURATION</th>
<th>OUTPUTS</th>
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<tbody>
<tr>
<td>CROSSOVER ADJUST</td>
<td>EQUALIZER ADJUST</td>
<td>DELAY ADJUST</td>
<td>INPUT/LEVELS</td>
</tr>
</tbody>
</table>

<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>

**WARNING:** Settings have changed - Make sure to 'Lock Down' before Exiting App.

- 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.

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

- **Chime Volume** - Allows the factory warning chimes to be adjusted up or down when interfacing factory systems.

  **Note:** In newer Ford vehicles chimes will be heard through the gauge cluster if the factory amp is removed.

The Chime Volume control is provided to prevent warning tones from being overly loud.
Locking Down Data

- **LOCK DOWN**: Stores the current configuration in the AX-DSP
- **SAVE CONFIG**: Saves the current configuration to your device
- **RECALL CONFIG**: Recalls a configuration from your device
- **APPLY CONFIG**: Applies the recalled configuration to the AX-DSP
- **IDENTIFY**: Click this button to identify the AX-DSP; the chimes will play
- **RESET TO DEFAULTS**: Resets the DSP customization settings, will not reset vehicle type. During the reset process, your amplifiers will shut off for 5-10 seconds, and then turn back on once completed.
- **VEHICLE TYPE**: Select the type of vehicle the AX-DSP is installed in

**Last and the most important.**

**You must lock down your configuration!!!**
**PINOUT**

- **Input 6** - N/A
- **Input 5** - N/A
- **Purple RCA Jack** - Rear Right Input *
- **Green RCA Jack** - Rear Left Input *
- **Gray RCA Jack** - Front Right Input *
- **White RCA Jack** - Front Left Input *
- **Black/Yellow** - Future Use

* Cut off RCA jack for speaker level input

- **Black** - Chassis Ground
- **Pink** - CAN-HI
- **Blue/Pink** - CAN-LO
- **Brown** - Control Wire for BT Volume Knob
- **Orange** - Control Wire for Bass Knob
- **Red** - Accessory Power
- **Yellow** - Battery Power

- **Blue/White** - Amp Turn-On
- **Red/White** - Future Use
- **White/Red** - Future Use
- **White/Green** - Future Use
- **RCA Jack 1** - User Assignable Output
- **RCA Jack 2** - User Assignable Output
- **RCA Jack 3** - User Assignable Output
- **RCA Jack 4** - User Assignable Output
- **RCA Jack 5** - User Assignable Output
# SPECIFICATIONS

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Impedance</td>
<td>1M Ohm</td>
</tr>
<tr>
<td>Input Channels</td>
<td>4</td>
</tr>
<tr>
<td>Input Options</td>
<td>High-level or Low-level selectable</td>
</tr>
<tr>
<td>Input Type</td>
<td>Differential-Balanced</td>
</tr>
<tr>
<td>Input Voltage High Level</td>
<td>Range 0 - 28-volts (peak-to-peak)</td>
</tr>
<tr>
<td>Input Voltage Low Level</td>
<td>Range 0 - 4.9-volts (peak-to-peak)</td>
</tr>
<tr>
<td>Output Channels</td>
<td>6</td>
</tr>
<tr>
<td>Output Voltage</td>
<td>Up to 5-volts RMS</td>
</tr>
<tr>
<td>Output Impedance</td>
<td>50 Ohms</td>
</tr>
<tr>
<td>Equalizer Type</td>
<td>15 Band Graphic EQ, +/- 10dB</td>
</tr>
<tr>
<td>THD</td>
<td>&lt;0.03%</td>
</tr>
<tr>
<td>Frequency Response</td>
<td>20Hz - 20kHz</td>
</tr>
<tr>
<td>Crossover</td>
<td>2-Way low-pass (sub), high pass (front &amp; rear)</td>
</tr>
<tr>
<td>Crossover Type</td>
<td>Linkwitz-Riley 24db slope, fixed</td>
</tr>
<tr>
<td>Sampling</td>
<td>48kHz</td>
</tr>
<tr>
<td>S/N Ratio</td>
<td>105dB @ 5-volts RMS</td>
</tr>
<tr>
<td>Operating Voltage</td>
<td>10-16-volts DC</td>
</tr>
<tr>
<td>Standby Current Draw</td>
<td>7mA</td>
</tr>
<tr>
<td>Operation Current Draw</td>
<td>150mA</td>
</tr>
<tr>
<td>Adjustments/Controls</td>
<td>Application via Bluetooth</td>
</tr>
<tr>
<td>Remote Output</td>
<td>12-volts DC (signal sense or with ignition)</td>
</tr>
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</table>
Having difficulties? We’re here to help.

Contact our Tech Support line at:
1-800-253-TECH

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

Tech Support Hours (Eastern Standard Time)
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