

# **AXTON A642DSP 5-CH Smart Digital Amplifier User Manual**

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A642DSP **5-CH SMART DIGITAL AMPLIFIER INSTALLATION & OPERATION MANUAL** 

#### **EINBAU & BEDIENUNGSANLEITUNG**

Thank you for purchasing this AXTON amplifier!

To maximize the performance of this amplifier and your complete car audio system install, we recommend that you acquaint yourself thoroughly with all technical features and controlling options of this AXTON amplifier. Please read this manual carefully, before attempting the installation.

If, after reading this manual, you still have questions regarding functions or the installation of the amplifier, we recommend that you consult your dealer.

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#### **SAFETY INSTRUCTIONS**

- Do not turn on any function which may distract you while driving the vehicle.
  - Functions requiring sustained attention must only be used when the vehicle is at a complete standstill. Make sure to always stop your vehicle in a safe place before operating these functions. There is a risk of causing an accident.
- Keep the volume at a low level to be able to hear exterior noises while driving the vehicle. There is a risk of causing an accident.
- Do not open the amplifier or undertake any modification of the product. There is a risk of accident, fire or electric shock.
- Only use this amplifier with 12V mobile applications. Any other use other than the use for which this product has been designed may lead to fire, electric shock or injury.
- Use fuses of the correct amperage. There is a risk of fire or electrocution.
- Do not obstruct radiators and/or vents. Internal overheating may occur and cause a fire.
- Ensure all connections are properly made. Check the section of cable and the type of cable if it does not correspond with the use. There is a risk of fire, injury and/ or damage to the product.
- Do not use nuts or fasteners part of the steering or braking systems for ground connection. The fasteners and nuts used for the brake and steering systems (or any other security system) as well as various tanks must never be used for grounding.
  - Use of these parts as ground may deactivate the vehicle's control system and cause a fire or other technical problem.
- Keep all small objects which could be swallowed, such as the fasteners and screws, out of the reach of

- children. Swallowing such objects may cause serious injuries. In the event of swallowing any of these objects, immediately seek medical advice.
- Before starting the installation, disconnect the negative terminal of the battery to avoid any risk of injury, fire or damage to the equipment.

#### **MAIN FEATURES**

- 5-channel Smart Digital Amplifier with iOS or Android App controlled audio DSP functions
- Class A/B front/rear channel amp for best sound quality, Class D sub channel amp for best sound quality and power ratio
- DSP-controlled 5-channel Preout (6 Volt) including REM out to control additional amplifiers
- Bluetooth 5.0 Audio Streaming with automatic source switching
- Optical and Coaxial input for lossless audio data transmission. If you connect the optionally available AXTON ABT50 device you can listen to your Hi-Res Audio music files losslessly via Bluetooth or by OTG cable.
- Optional Remote Control with direct Master Volume and Bass Level Control
- Plug'N'Play quick installation system via optional vehicle brand and model specific ISO wire harness
- Auto-Turn-On function

### **FUNCTIONALITY & ADJUSTABILITY**

- Bluetooth connection and control of DSP settings via iOS or Android Smartphone App
- Freely configurable active crossover: High-/Low-/Band-/Bypass with 6/12/18/24dB/Oct. slope for Front, Rear and Subwoofer channel
- Time Alignment in cm (0 420 cm) for front, rear and subwoofer channel
- 5 channel control: Gain, Phase switch and Mute function for each speaker
- Freely configurable 10 or 31-band parametric Equalizer for every single front and rear speaker
- Freely configurable 5-band parametric Equalizer for subwoofer channel
- Is able to save 5 memories in the amp and unlimited sound settings on the smartphone
- · Dynamic Bass setting for powerful performance without subwoofer
- Noise Gate function to reduce car stereo background noise42DSP

# **TECHNICAL SPECIFICATIONS**

Music Power Output @ 4 ohms:	54 W x 4 + 250 W x 1
RMS Power Output @ 4 ohms:	32 W x 4 + 176 W x 1
Frequency response:	20Hz ~ 45 kHz
Audio sampling frequency:	192 kHz
Distortion:	1 KHz <0.001%
Supply voltage range:	7.2V – 16.5V
Signal to noise ratio:	> 120 dB
Dynamic range:	> 96 dB
Standby current:	< 0.23 A
Maximum operating current:	30 A
Dimensions (WxHxD):	185 (218) x 40 x 114 mm

# **CONNECTIONS + CONTROLS**

#### **INPUTS + OUTPUTS**

#### 1. ANTENNA

External Bluetooth antenna of the audio streaming BT module, called "BT Audio" in your mobile settings. The second BT module, called "A642DSP" is for doing the adjustments only and does not need a separate antenna.

### 2. POWER LED

Two color LED: Green light shows normal operation. Green light blinking shows a current data transfer, i.e. receiving data from the app. Red light shows protection mode, i.e. too low impedance.

# 3. POWER TERMINAL

Connect Ground and Battery cables.

### 4. REMOTE CONTROL

Connect the optional RC for convenient operation of Master Volume, Bass Volume and Mute function. When you are using the ABT50 with OTG for iPhone for lossless audio transmission, the signal is sent directly avoiding any converter. That's awesome.

But it also means you are not able to adjust the volume with your iPhone. Therefore you need to connect the separate available RC.

# 5. REMOTE / SIGNAL TURN ON

Choose if the amp shall turn on by separate ACC+/Remote wire or by DC Offset signal.

### 6. FUSE

If the fuse is broken, replace it with a new fuse of same value (30 A).

### 7. LINE OUT

If you only want to use the DSP function of the A642DSP with a separate high per formance amplifier, connect the line out of the A642DSP with the RCA input of your amplifier.

# 8. OPTICAL

Connect to ABT50 for lossless Hi-Res audio transmission from your smartphone.

# 9. COAXIAL

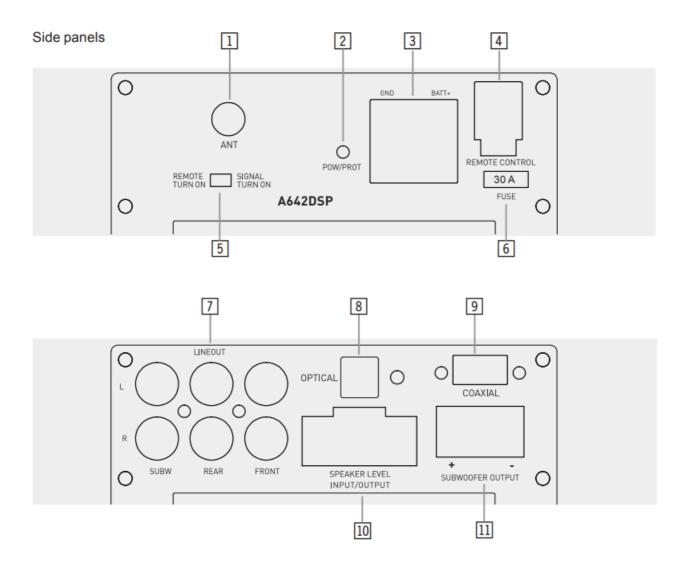
This input provides power for the ABT50 and also receives audio data from this device. It's impossible to connect usual USB sticks.

# 10. SPEAKER LEVEL INPUT/OUTPUT

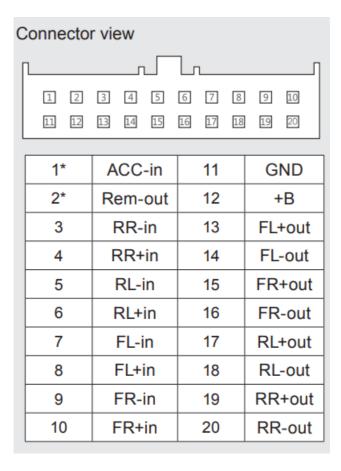
This is the main connector for optional Plug & Play installation.

# 11. SUBWOOFER OUTPUT

This is the terminal to connect a subwoofer with minimal impedance of 2 ohms.



# **WIRING DIAGRAM**



- 1. In some cases with old headunits the Auto-Turn-On function cannot work. If you meet this problem, please connect the wire "ACC-IN" to ACC/Amp Remote of the car stereo or another cable which will provide +12 V only when the car stereo is turned on. Secondly select "REMOTE TURN ON" on the remote switch.
- 2. REM-Out: Connect this wire to the remote input of a separate amplifier.

#### **SPEAKER IMPEDANCE & POWER WIRE INFO**

It is recommended that you follow the optimum speaker / subwoofer impedance info suggested below. A642DSP  $\rightarrow$  CH 1/2 and 3/4 4 ohm stereo | CH 5 4/2 ohm mono

### **AMPLIFIER MOUNTING**

**Attention!** For your own safety, disconnect the negative battery terminal (GND) or remove the main fuse in the positive power cable near the car battery, before you start any wiring work!

Before you proceed to install this AXTON amplifier, it is recommended to map out the complete system and the respective wiring required. Consider all additional electrical requirements and accessories, such as power cables, interconnect cables etc., to complete the install. Please note that – because of possible interference problems with the existing car electrics and electronics – especially the routing of the signal cables and the chassis ground connection will have a profound impact on the trouble-free (noise free!) operation of the amplifier.

The mounting location should be carefully selected and in the interest of passive driver and passenger safety, the amplifier must be securely mounted. Make sure that there is no wiring harness, fuel tank etc. behind or below the mounting surface that may be damaged by the drilling of the holes for the amplifier mounting screws. After installation, there should be a clearance of at least 5cm to all sides including the top of the amplifier heatsink. Make sure the unit is not exposed to direct sunlight, humidity, water, oil or spill of other fluids that may enter the amplifier.

Once the location where the amplifier will be mounted is defined, use the unit as a template for the marking of the mounting holes with pencil or felt-tip marker. The mounting holes should be pilot-drilled, using a 2,5mm drill bit. Bolt the amp down.

**Important!** There must not be a direct contact of the amplifier heatsink, bottom panel or any other metal part of the amplifier to the vehicle metal panel! Electrical ground-loops will cause audible hum!

#### WIRE WIRE ROUTING

#### **MAIN POWER WIRES**

We recommend a minimum main power cable cross-section (5 m total length) of 16 mm<sup>2</sup> OFC coppercable or 20 mm<sup>2</sup> aluminium cables, for both the positive and the ground wires. Following these recommendations guarantees a trouble-free operation of your amplifier, as well as full power output.

Run the positive main power cable ("B+") directly from the positive terminal of the car battery to the amplifier. For protection of your car audio system against electrical fire hazards, resulting from a short-circuit of the main power cable to chassis ground a main fuse holder must be inserted within the first 30 cm of the positive main power cable. The applicable fuse value must be matched to the limitations of your main power cable AND the current draw of the amplifier – therefore choose an appropriate fuse value. Attach the ground cable to the amplifier. In most cases it will be best to keep the ground cable ("GND") as short as possible, i.e. to find a chassis contact very close to the amplifier. The ground power wire must have the same cross-section as the positive power cable. The contact point where the ground wire is attached to, must be solid and clean, i.e. free from rust or paint! Tighten both power input terminals of the amplifier, and double check for perfect fit of both main cable leads!

### **OPTIONAL PLUG'N'PLAY WIRE HARNESS**

From AXTON you can purchase several car-specific or universal Plug&Play cables for best installation comfort. Before you start with the installation with such a cable, make sure you know the security code of your headunit (if applicable). Remove the headunit from the dashboard and disconnect the main wire. Find a place for the A642DSP and connect the optionally available car-specific wire harness to the amp and to the headunit. Install the headunit back in the dashboard.

Close the electrical circuit by attaching the ground wire to the battery and switch on your head unit. The green status LED should turn on. If the status LED does not illuminate or the red protect LED lights up, your installation is wrong! Immediately turn off your headunit and carefully re-check all installation and wiring steps!

#### **APP INSTALLATION A642DSP**

### For Android phones only:

- 1. The current Android App can be found on the A642DSP product page on www.axton.de
- 2. Install A642DSP V1.0.apk to your Android smart phone.
- 3. Do not pair in the Bluetooth settings.
- 4. Turn on Bluetooth on your mobile and make sure that "Location" is permitted.
- 5. Open A642DSP app and click the "Connect" button



to connect your mobile to the amplifier.

# For iOS smart phones only:

- 1. Visit the Apple AppStore, search for "A642DSP" and install the app.
- 2. Turn on Bluetooth.
- 3. Do not pair in the Bluetooth settings.
- 4. Open the app and press the "Connect" button in order to connect the amp with the app.

Scan to download and install the app from the Apple AppStore



### https://apps.apple.com/de/app/a642dsp/id1613892144

Scan to download and install the app from the Axton homepage www.axton.de



http://axton.de

#### **BLUETOOTH AUDIO STREAMING**

Open the Bluetooth settings on your smartphone and search for "BT Audio" device. Press "connect" and enter the code "1234" to get the amp paired with your mobile. When you start playing music on your mobile, the amp automatically mute the signal from our car stereo. Please note: you cannot hear any warnings or navigation notes from your car stereo.

#### **FUNCTIONS**



### Connection to the smart mobile

Start the app and touch the "Connect" button. After the connection procedure is done successfully, the app downloads the current settings from the amplifier.



# Save to Phone

You can save the settings on your smartphone. To do this, press "Save on Phone" button , enter the desired filename, and confirm with "OK".



# Save to AMP

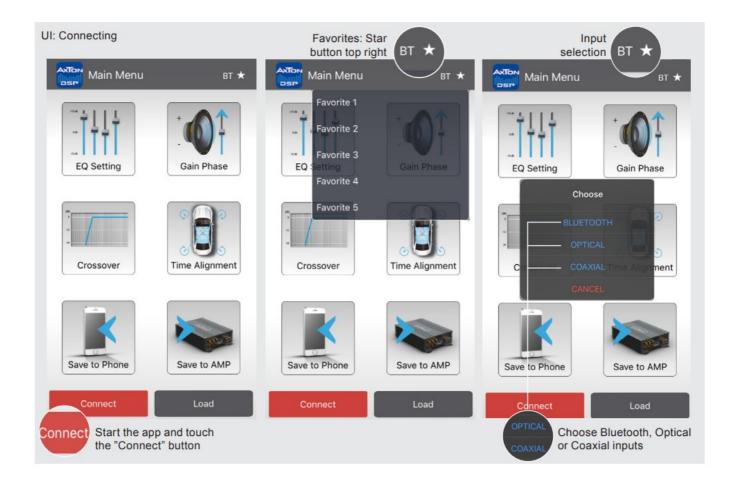
When you have done the settings, touch the "Save to Amplifier" button and chose the favorite to transfer the settings to the amplifier. During the saving process do not switch off the amplifier as this may lead to malfunction and/or damage.



Shows a list of files saved on the smartphone. Touch the desired setup to load. If you want to save the loaded setup permanently on the amp, press "Save to Amplifier" button .



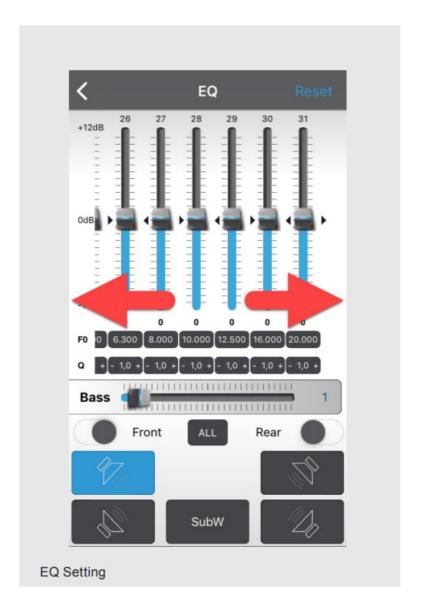
Press the star button at the top right, and select one of the favorites 1-5.





# **EQ Settings**

You can build your sound according to your settings in the EQ menu. Depending on the grade of required accuracy, you can chose between a 10 and a 31 band parametric equalizer. Swipe to the right/ to the left to get to the bands outside of the screen area.



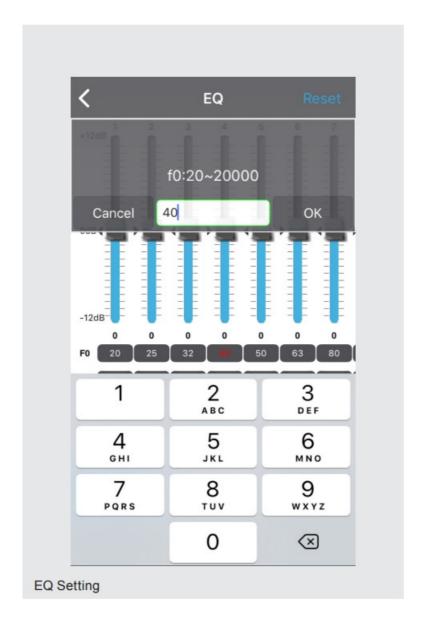
In the line "f0" tap on the band you want to adjust. A pop-up window appears to enter the value of the center frequency you want. Confirm with "Ok"

In the line "Q" tap on the band you want to adjust. A pop-up window appears to enter the value of the quality factor

you want. Confirm with "Ok" . Instead you can also touch "-" or "+" to adjust the Q factor in 0.1 steps. The quality factor (Q factor) determines the effect of the EQ filter (bandwidth) on the frequency band around the chosen center frequency f0.

Example1: f0 = 1000 Hz desired bandwidth of EQ filter = 1000 Hz (i.e. 500 Hz - 1500 Hz) Q = 1

**Example2:** f0 = 1000 Hz desired bandwidth of EQ filter = 200 Hz (i.e. 900 Hz – 1100 Hz) Q = 5 Q factors from 0.3 to 9.9 are possible.



If required, you can choose independent equalizer preferences for the front and rear channels and even for each channel separately. Simply use the slider Front or Rear. When you want to do one setting for all channels (w/o

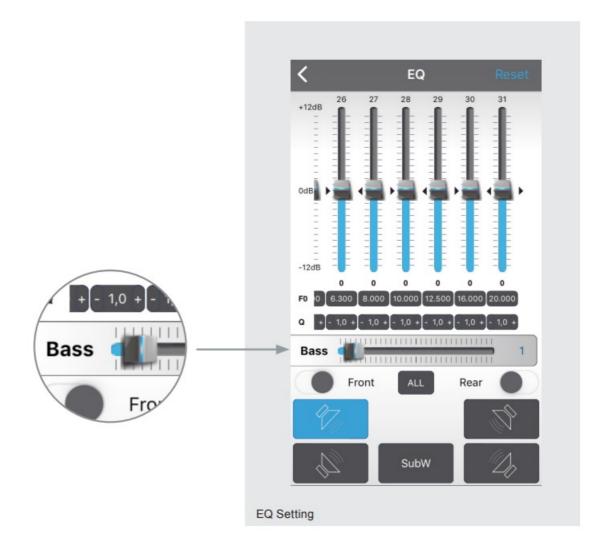
sub) just press the "all" button

To reset all settings to "0", press the "Reset" button in the EQ menu. If you just want to try out the presets and then go back to your personal preferences, exit without saving the app, and then restart. The app will then load your saved preferences from the amplifier.



# **Dynamic Bass**

Located in the EQ menu, the "Bass" slider is a very effective way to increase bass performance without overloading the speakers. Level at "0" = no Dynamic Bass function active. Level at "1" to "20" = the higher the value the higher the bass increasing. Simultaneously a strong subsonic filter is enabled to protect the speakers from deepest bass frequencies to avoid damage to them.



# **Dynamic Bass:**

The "Bass" slider offers the bass level without overloading the speakers.



#### **Gain Phase**

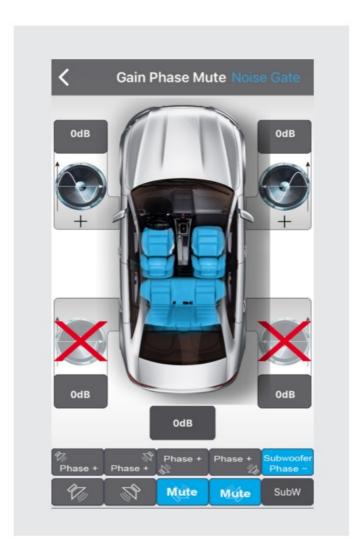
In this menu you can adjust the following settings for each individual channel: sound level, mute and phase. The sound level settings adjust in the field above and under the respective speaker icons.

In the lower area of the menu, in the top line, are the icons for phase-settings. From left to right: Front left, Front right, Rear left, Rear right, Subwoofer.

In the bottom line are the icons for settinthe mute switch. From left to right: Front left, Front right, Rear left, Rear right, Subwoofer.

When you adapted the settings, go back to the main menu, and touch the "Save to Amplifier" button transfer the settings to the amplifier. During the saving process do not switch off the amplifier as this may lead to malfunction and/or damage. You can also save the settings on your smartphone. To do this, press "Save on

Phone" , and enter the desired filename.



# **Noise Gate**

In the upper right corner of the GAIN menu you can find the Noise Gate function. It's intended to reduce the back ground noise of the head unit. If back ground noise of the head unit is audible, increase the Noise Gate level by sliding to the left until the noise disappeared.





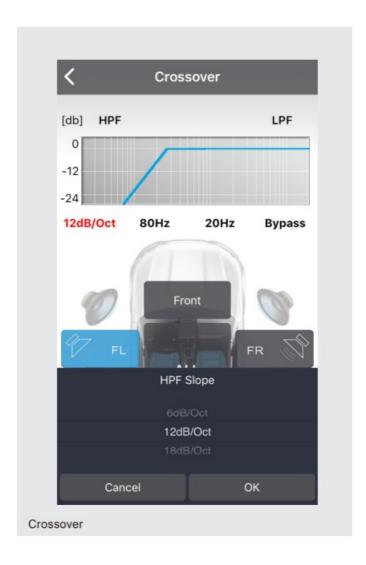
#### Crossover

In this menu you can assign a frequency band to the connected speakers that corresponds to their recommended operating range. You can choose to adjust each channel separately, combine front and rear speakers and also all speakers together.

In the left half of the diagram you can set the break frequency of the high pass filter as well as its slope. In the right half are the break frequency and slope of the low pass filter. The blue line shows the set slope of the filter. "Bypass" means the signal is unfiltered and contains all frequencies. The filter settings also apply to the corresponding preamp outputs.

When you adapted all settings, go back to the main menu, and touch the "Save to Amplifier" button to transfer the settings to the amplifier. During saving do not switch off the amplifier as this may lead to malfunction and/or damage. You can also save the settings on your smartphone. To do this, press the "Save on Phone" button

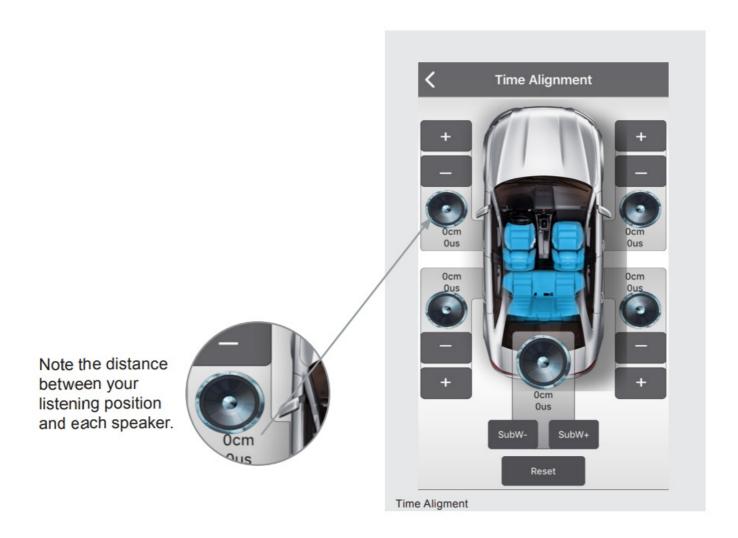
, and enter the desired filename.





# Time Alignment Time Alignment

Press the "Time Alignment" button to go to the menu. In this menu you can apply a time delay to the speaker signal to simulate an ideal listening position. Note the distance between your listening position and each speaker. Choose the most distant speaker as the reference for the other speakers.



With the aid of the following example, calculate the values for your speakers:

(FL) front left is 0.80 m from the listening position (FR) front right is 1.40 m from the listening position (RL) rear left is 0.50 m from the listening position (RR) rear right is 1.30 m from the listening position (SubW) subwoofer is 2.00 m from the listening position (SubW) subwoofer is 2.00 m from the listening position Value for FL = SubW – FL  $\rightarrow$  FL = 2.00 – 0.80 m Value for FR = SubW – FR  $\rightarrow$  FL = 2.00 – 1.40 m Value for RL = SubW – RL  $\rightarrow$  RL = 2.00 – 0.50 m Value for RR = SubW – RR  $\rightarrow$  RR = 2.00 – 1.30 m SubW remains at the value "0"

# **WARRANTY CONDITIONS + LIMITATIONS**

# What products are covered by AXTON's limited Warranty?

The limited Warranty (the "Warranty") applies to AXTON products purchased from an authorized dealer by end customers in the European Economic Area or Switzerland ("Territorial Scope").

# What is the validity period of AXTON's Warranty?

Under this Warranty, AXTON warrants, for a period of 2 years, that the product is free from defects in material and/or workmanship at the time of the original purchase. This 2-year period commences on the date of the original purchase as per the original invoice or until receipt. If you have purchased the product as a consumer, and the defect is identified within the first six months after the original purchase (see above), we will assume that the defect already existed at the time of purchase.

# Who can claim under the Warranty?

AXTON grants the limited Warranty to natural persons only, who purchased the relevant product primarily for personal use.

What is covered by the Warranty?

AXTON warrants that the product is free from defects in material and/or workmanship at the time of the original purchase. AXTON does not, however, provide a warranty covering every defect and damage that may occur. It only covers the hardware components of the device, and in no event the software used with the device, regardless if this was provided by AXTON or the third-party vendor. The Warranty therefore does not cover the following cases, in particular:

- normal wear and tear (such as to surfaces and protective coverings);
- superficial damage, such as scratches, dents, and damaged plastic, worn or mechanically defective connections;
- misuse, including any treatment resulting in physical or superficial damage, such as a cosmetic defect, to the product;
- damage caused by connecting or using the product for a purpose other than those specified, or a failure to observe the operating and/or installation instructions for the particular model;
- installation or use of the product contrary to the applicable technical standards, or the safety regulations in the country in which the product is installed or used;
- damage caused through an unauthorized attempted repair, or an attempted repair by someone other than a AXTON authorized service partner;
- damage caused by modifications to the product not expressly authorized by the manufacturer;
- damage caused by malicious code ("Software Viruses") or by using software not supplied with the product or which was incorrectly installed;
- use of third party vendor software programs for editing, modifying, adapting, or extending AXTON's authorized software components as are run on the product;
- · use of third-party vendor firmware/operating system software
- damage caused by liquids or chemicals of whatever type, and/or excessive temperatures, moisture, or damp;
- accidents, drops or other such effects of extreme accelerating forces;
- damage caused by lightning strikes, electrostatic charge, incorrect operating voltage, water, fire, force majeure, inadequate ventilation for other reasons for which AXTON is not responsible;
- damage caused by using the device outside of the defined specifications;
- damage caused by using the product with other systems or devices, which are not designed to be used with this product;
- adjustments or modifications without AXTON's prior written approval, including product upgrades extending beyond the specifications or characteristics described in the operating manual;
- modifications of the product for the purpose of adapting it to national or local technical norms or safety standards of countries for which the product was not expressly designed or manufactured;
- using service or spare parts not produced or distributed by AXTON;
- using the product in connection with accessories not approved for use with this product;

AXTON, moreover, does not warrant (expressly, implicitly, statutorily, or otherwise) the quality, performance, reliability or suitability of the product for a particular purpose except as described, nor the software/firmware installed on the device ex works.

No warranty service will be provided, moreover, if the model number /serial number/UUID/product number on the product is changed, erased, made illegible or removed. The same applies if the receipt or invoice isincomplete and/or illegible when presented.

### Is AXTON liable for other defects or damage?

AXTON will repair or replace products, only if they are covered by the terms of this Warranty. AXTON is not liable for any material or intangible loss or damage such as the price paid for the product, loss of profits, revenue, data, or relating to the enjoyment of the product or components associated with it, arising directly or indirectly under this

Warranty or otherwise in relation to products or services. This likewise applies to loss or damage relating to the impairment or operational failure of the product, or devices associated with it, caused by defects or the non-availability of the product during the time it is with AXTON or AXTON's service partner, as well as to periods of downtime and business interruptions. In addition, AXTON does not accept any liability for shipment-related risks – such as the loss or destruction of the product – in connection with the fulfilment of the Warranty.

This disclaimer applies to losses of damage irrespective of the legal basis, especially on the grounds of negligence, other wrongful conduct (torts), breach of contract, express or implied guarantees, and strict liability (even if AXTON or its service partner has been advised of the possibility of such damage occurring).

If these disclaimers are prohibited or limited under the applicable law, AXTON will limit its Warranty and liability to the extent permissible under the applicable regulations. For example, some national laws prohibit the exclusion or limiting of damages payable in connection with negligence, gross negligence, willful wrongdoing, deceitful conduct, and other such acts. For the duration of this Warranty, all liability that cannot be excluded completely will be limited to the extent permissible under the applicable law. Liability under this Warranty is limited to the price paid for the product. If the applicable law only permits higher limits on any liability, this higher limitation will apply.

# How do I exercise my Warranty rights?

If you want to exercise your entitlements under this Warranty, please contact the authorized dealer where the product was purchased, and present it with the original copy of the till receipt or invoice. Do not return any products to AXTON directly, otherwise our Warranty obligations cannot be fulfilled. You will find the name of the relevant dealer or reseller on your proof of purchase.

Defective devices sent by the authorized dealer to the service center, must also be accompanied by any accessories with a logical connection to the observed fault. This means, for example, the navigation package on an SD or microSD card supplied or purchased with the device, if problems or functional errors were observed in connection with the navigation function.

# **How will AXTON fulfil its Warranty?**

AXTON or its service partner will choose to either repair or replace the product or its defective parts covered by the Warranty, and assume the costs of material and labor in doing so.

Repairs under the Warranty must be carried out by AXTON or its authorized service partner. Products that are repaired or replaced may contain new and/or refurbished components and devices. Components that are swapped out will become the property of AXTON.

### Will I incur any costs in connection with the Warranty service?

AXTON assumes the costs of material and labor in connection with its Warranty service. The Warranty holder is responsible for the costs of shipment and bears the risks connected with the shipment (see above). If the product is found to be operating faultlessly, or there is no warranty entitlement because the warrant period has expired or for any other reason, AXTON or its authorized service partner will be entitled to charge a flat-rate investigation fee of €30.00.

# Do this Warranty affect my statutory or contractual rights?

This Warranty is made voluntarily by AXTON, and it will, in any case, extend your statutory rights. As a consumer, you remain fully entitled to ystatutory rights, such as the statutory guarantee. This Warranty also has no effect whatsoever on your contractual rights against the resellermay continue to exercise these rights in full.

### **WARRANTY SLIP**

Model name: A642DSP

Date of purchase Your name : Your address :

City:

ZIP or Postal Code:

Country:
Your Dealer:
NOTICE

Hereby, ACR Brändli + Vögeli AG declares that the type of radio equipment A642DSP complies with the 2014/53/EU Directive. The full text of the EU Declaration of Conformity is available at the following Internet address: <a href="http://productip.com/?f=1f26e5">http://productip.com/?f=1f26e5</a>



http://productip.com/?f=1f26e5







# **MADE IN CHINA**

EU Legal Representative: ACR S & V GmbH, Industriestr. 35, D-79787 Lauchringen, Germany Manufacturer: ACR Braendli + Voegeli AG, Bohrturmweg 1, CH-5330 Bad Zurzach, Switzerland



# **Documents / Resources**



AXTON A642DSP 5-CH Smart Digital Amplifier [pdf] User Manual A642DSP 5-CH Smart Digital Amplifier, A642DSP, 5-CH Smart Digital Amplifier, Smart Digital Amplifier, Digital Amplifier

# References

- O ProductIP (40c56b9)
- AXTON Car-Hifi Systeme für Ihr Auto | Home page

Manuals+,