DS18 H-KO10 Competition Class D Amplifier Owner's Manual

Contents

DS18 H-KO10 Competition Class D Amplifier

Product Information

Specifications

- Product Name: DS18 HOOLIGAN KO Amplifier
- Amplifier Class: Competition Class D
- Features: Platinum Finish Connections, Fully Variable Crossovers, Protection Circuitry

FAQ'S

Can I install the DS18 HOOLIGAN KO amplifier myself?

Yes, you can install the amplifier yourself. However, professional installation by an authorized DS18 H-KO amps dealer is highly recommended to ensure optimal performance and to preserve the product warranty.

What is the purpose of the fully variable crossovers?

The fully variable crossovers allow you to customize the sound by adjusting the frequency response. This helps in achieving the best sound quality and matching the amplifier to your speakers and listening preferences.

What are the protection features of the DS18 HOOLIGAN KO amplifiers?

The amplifiers come with overload, short circuit, thermal, and reverse polarity protection features. These features are designed to protect the amplifier from misuse and common causes of amplifier failure, ensuring its longevity and safety.

Introduction
The DS18 HOOLIGAN KO Car amplifiers offer high quality audio reproduction for both audiophiles and everyday listeners. These amplifiers feature fully variable crossovers with 12dB per octave slopes, allowing you to customize the sound to best suit your speakers and listening preferences.

Platinum Finish Connections
The DS18 HOOLIGAN KO amplifiers are equipped with platinum finish connections. These connections ensure solid electrical connections that resist corrosion, providing long-lasting performance and reliability.

Fully Variable Crossovers
The amplifiers come with fully variable crossovers, eliminating the need for additional outboard crossovers. You can also use them in conjunction with outboard passive or active crossovers, depending on the complexity required by your system. The 12 dB per octave slope offers steep roll-off above or below the selected frequency, allowing for precise sound control.

Protection Circuitry
The DS18 HOOLIGAN KO amplifiers are equipped with protection circuitry to ensure the longevity and safety of the amplifier. The overload, short circuit, thermal, and reverse polarity protection features are designed to protect the amplifier from misuse and common causes of amplifier failure.

Product Usage Instructions

Warning
Professional installation by an authorized DS18 H-KO amps dealer is highly recommended to ensure satisfactory performance and preserve the product warranty. If you decide to do your own installation, please read and follow this manual carefully. Failure to do so may compromise the integrity of the product, your automobile, and may void the warranty.

Amplifier Mounting

1. Select a suitable location in the hatch/trunk area of your car or SUV, or under/behind the seat of most pick-up trucks. Ensure the location provides adequate ventilation for the amplifier.
2. Avoid mounting the amplifier with the fins facing down. The fins should be facing up, either vertically or horizontally.
3. Secure the amplifier using the screws provided.
4. Before securing the amplifier, carefully inspect the mounting location to avoid drilling into or damaging any electrical, hydraulic, fluid, or fuel lines.

Installation Instructions

1. Before starting the installation, disconnect the negative cable from the car battery. Tape up the end to isolate it from the battery.

2. Run an appropriate gauge wire from the battery to the amplifier. Plan this part of the installation carefully as this cable will carry high current. Ensure it is properly fused and does not short to the body, as it could cause a fire.
3. Connect the power wire to the battery using a fuse capable of handling the total current load of all connected amplifiers. Do not install the fuse yet, wait until the end. Place the fuse as close to the battery as possible. If the distance between the fuse and battery exceeds 18 inches (wire length), reevaluate the wire and fuse placement.
4. Find a clear metal area closest to the amplifier for grounding. Remove any paint or undercoating from the body and securely screw the ground in place.

FEATURES

- Competition SPL Monoblock Class-D Subwoofer Amplifier
- **Protection Circuit:** Thermal, Over-Load, DC, Short Circuit, Voltage and Clipping
- **LED indicates working status:** Power/Protection/Clipping
- **Protection Circuit:** Thermal, Over-Load, DC, Short Circuit, Voltage and Clipping
- LED Digital Voltmeter
- Tiffany RCA Connectors
- Cooling Fan
- Strap Mode Connection
- Remote Bass Knob with Power and Clip LED Indicator included
- Latest SMC and MOSFET Technology
- Heavy Duty Printed Circuit Board

DS18 H-KO AMPS
Thank you for choosing DS18 HOOLIGAN KO amps!

To Take full advantage of the DS18 HOOLIGAN KO amps you have just purchased, please read and follow the instructions in this manual. As with all of our products, professional installation by an authorized DS18 dealer is highly recommended!

INTRODUCTION

The D518 HOOLIGAN KO Car amplifiers offer high-quality audio reproduction for the audiophile and the everyday listener alike. All models feature fully variable crossovers with 12dB per octave slopes, allowing you the ability to tailor the sound to best fit the speakers and your listening preferences.

Platinum Finish Connections
Ensures solid electrical connections that resist corrosion.

Fully Variable Crossovers
Fully variable crossovers promote installation ease and save the cost of outboard crossovers. Additionally, they may be used in conjunction with outboard passive or active crossovers, depending on the complexity required by the system. The 12 dB per octave slope offers steep roll-off above or below the selected frequency.

Protection Circuitry
Against Overload, Short Circuit, Thermal, and Reverse Polarity. These protection features are designed to protect the amplifier from misuse, as well as from common causes of amplifier failure.

WARNING
Professional installation by an authorized DS18 H-KO amps dealer is highly recommended! Otherwise, the performance of your new gear may not be satisfactory. In the event that you decide to do your own installation, please read and follow this manual very carefully. Failure to do so may compromise the integrity of this product, your automobile, and possibly void the product warranty.

Amplifiers are generally mounted in the hatch/ trunk area of a car or SUV, and under or behind the seat of most pick-up trucks. Select a location that will provide adequate ventilation for the amplifier. Avoid mounting the amplifier with the fins down. The fins should be facing up either vertically or horizontally. Secure the amplifier with the screws provided.

Before securing the amplifier, inspect the mounting location carefully to ensure that you do not drill into or damage any electrical, hydraulic, fluid or fuel lines.

INSTALLATION INSTRUCTIONS

1. Before you start, disconnect the negative cable from the car battery. Tape up the end so it is isolated from the battery.
2. Run an appropriate gauge wire from the battery to the amplifier. Plan this part of the installation carefully. This cable will carry a very high current, if it should short to the body and it is not properly fused it could catch fire.
3. Connect the power wire to the battery using a fuse capable of the total current load of all amplifiers connected. Don't install the fuse yet. Wait until the end. Locate the fuse as close as possible to the battery. If the fuse is further than 18 inches (wire length) from the battery you should reevaluate the wire and fuse placement.
4. Find the closest clear metal area to the amp for a ground. Sand, grind, or scrape all paint and undercoating from the body and screw the ground securely in place.
    - It is advisable to test the ground with an ohmmeter between the ground cable and the negative battery cable to ensure a good low-resistance connection. Some panels used in modern cars do not offer the best ground. If you believe this is the case – first consult with the vehicle manufacturer.
5. Run the speaker wire to the speakers. It is advised that you leave some extra wire at this point. You can fix it later.
6. If you haven't done so already, mount the amp now.
7. Connect the power and ground to the amplifier.
    - ONLY AFTER THIS STEP – SHOULD YOU INSTALL THE FUSE AT THE BATTERY.
8. Connect the remote wire from the head unit to the amplifier.
    - Now is a good time to turn on the amp for the first time. Make sure it turns on properly and does not go into protection mode.
9. Connect the speaker wires to the amp and speakers (make sure the amp is off first). Make sure the polarity(+) and(-) are correct.
10. Connect the RCAs to the amp.
11. Double-check the amplifier controls at this time. Make sure everything is set correctly for your system.
12. Now you're ready to play it for the first time. It is best to leave the gain all the way down at first. Start with the head unit volume low and work your way up.
13. Now you can tune the amp. Take your time and make only one adjustment at a time. It may take some time to get the system fully adjusted. During this time the amp is drawing current from the battery. You should check the battery voltage from time to time and recharge it if it gets low. That's it. You're done. Now have fun.

POWER CONNECTIONS

It is important to have good quality power and ground connections. Remember, to complete an electrical circuit, the ground connection is just as important as the positive power connection. Before any power connections are made, disconnect the ground cable of the battery. Use 1/0 gauge or larger automotive grade wire if the distance from the battery to the amp is excessive. Avoid sharp or rough edges as a safeguard against short-circuiting and potential fire hazards.

GND
Connect the proper gauge ground wire to the amplifier GND terminal. Locate the position on the chassis of the car where the amplifier will be grounded. Use solder or a crimped ring terminal to connect the ground wire pre-drill the prepped chassis to bolt the ground ring terminal with a nut, bolt, and lock washer to insulate the metal and the connector with paint or silicone to prevent rust and oxidation. Silicone also works great to prevent nuts and bolts from working loose in the harsh environments of an automobile. Upon completion of the ground connection, grab the wire end connector to confirm the connection is solid. To prevent engine noise, it is recommended to ground the head unit and other electronic audio devices in the same location.

REM
Connect the remote wire (power antenna output) from the head unit to the REM terminal. If the head unit is not equipped with a
remote/antenna output, locate a wire that is controlled by the accessory position of the key. It is important to have the amplifier turn off with the radio or key. If the amplifier remains on, the battery will drain.

12V
Connect the proper gauge power wire to the B+ terminal. Trace the power wire through the car to the in-line fuse or circuit breaker that is no more than 18″ from the battery. Remember, the In-line fuse or circuit breaker protects the car in the event of a short circuit, connect the in-line fuse or circuit breaker to the battery, but do not install the fuse or activate the circuit breaker yet.

H-KO2

H-KO3 / **H-KO5** / **H-KO8**

H-KO340

H-KO10

CONTROLS AND ADJUSTMENTS

H-KO2 / **H-KO3** / **H-KO5** / **H-KO8**

H-KO340

CONTROLS AND ADJUSTMENTS

1. RCA AUDIO INPUT CONNECTION – Using high-quality shielded stereo RCA cables, connect the source signal to the amplifier RCA inputs.
2. RCA OUTPUTS – Output RCA jack to another amplifier.
3. Level Sensitivity – Adjust the amplifier's pre-amp sensitivity level. The minimum sensitivity level is 200mV , while the maximum level is 6V Monoblocks 8V 4-channels.
4. SUBSONIC FILTER – Adjust the frequency setting of the subsonic crossover. The frequency range is 10Hz-50 Hz. Frequencies lower than the setting will be filtered out of the audio signal.
5. BASS BOOST – Adjust the amplifier's 45Hz Bass Boost level up to 6dB.
6. Remote Level Control Connection – Connect the remote level control to this terminal. The remote level control allows adjustment of the subwoofer level from a remote location.
7. LPF/HPF Crossover – Adjust the frequency setting of the low or high pass crossover. for LPF, Frequencies higher than the setting will be filtered out of the audio signal, for HPF, Frequencies lower than the setting will be filtered out of the audio signal.
8. PHASE – The phase setting synchronizes the phase of your Subwoofer output to that of the other speakers in the car. Set your amp to 0 and listen to a track with some bass. Afterward, set the Phase setting to 180 degrees, and see if the bass output improves or becomes worse with the same track. Leave the switch set to whichever setting yields the best results.
9. STRAP MODE – Use an RCA to connect between two amplifiers that are in daisy chain mode, move the switch to "MAIN" if this is the main amplifier that receives the RCA signal from the radio and have connected the positive output of the subwoofer. move the switch to "STRAP" if this is the secondary amplifier that have connected the negative output of the subwoofer.
10. SPEAKER OUTPUT – Connect speaker cables from speaker terminal block to Subwoofers or Loudspeakers. Speaker's impedance should be checked carefully. Check the minimum impedance load of each amplifier in the specifications table respectively.
11. POWER INPUT: The power and ground will accommodate 0 gauge wire. Use high quality pure copper wire only. REM connector will accept wire sizes from12 to 16 gauge. This terminal is used to remotely turn-on and turn-off. the amplifier when +12V DC is applied.\
12. CROSSOVER FREQUENCY MULTIPLIER – The multiplier switch changes the range of frequencies affected by the frequency control. On this crossover, the front & rear channel control can be used to set the crossover point between 20Hz and 800Hz when set to the x1 position. When set to 10x, the crossover point can be set to any frequency between 200Hz and 8000Hz (8kHz).
13. CROSSOVER SELECTION SWITCH – Select either a high-pass filter (HPF), low-pass filter (LPF), or opt for full-range operation. Additionally, you have the option to enable both filters simultaneously, creating a bandpass crossover effect.
14. INPUT MODE – In 2-channel position the amplifier can use one input signal on the 1&2 channels to drive both 1&2 and 3&4 outputs simultaneously. In 4-channel position, the 1&2 and 3&4 inputs are separated and only output to their respective channels.

AMPLIFIER PANEL

1. **POWER**: Red Light = Amplifier is ON.
2. **GAIN**: adjust the output level.
3. **Clipping**
    - Clipping typically occurs when the gain is set too high to maximize the amplifier's output potential, leading to a squared or clipped sound wave. This can result in significant heat generation from both the amplifier and connected speakers, potentially causing catastrophic damage to your equipment.
    - To avoid these issues, follow these simple steps: After setting up your amplifier, keep an eye on the CLIP indicator light. If you notice it blinking, it indicates clipping. In such cases, promptly reduce the gain. Once the CLIP indicator light goes off, you have successfully eliminated clipping.
    - Our clipping indicator is highly accurate, comparable to an oscilloscope, providing real-time monitoring of dynamic source material such as music. This ensures that you can effectively manage and control the gain settings to prevent any potential damage to your audio equipment.
        - **Tips**: If you set your gains with an oscilloscope, everything is fine until some factor in your system changes. This change could be in the head unit volume, charging system voltage, source recording level, etc. If any of these factors differ from when you initially set your gains, the amplifier's clipping point will also change.
4. **Power Protection indicator Led**
   When the amplifier is powered on and functioning correctly, the green LED will illuminate. Consult the Troubleshooting Guide if the amplifier fails to power on for potential solutions. If the amplifier enters protection mode, the red LED will illuminate. For guidance on resolving issues related to the amplifier's protection mode, refer to the troubleshooting guide for possible solutions.
5. **Voltmeter**
   shows the input voltage of the amplifier in real time

SETTING THE GAINS

1. Only a limited number of individuals, including professional installers, possess the knowledge to accurately set amplifier gains. Failure to do so can lead to adverse consequences, including higher distortion, an elevated noise floor leading to reduced dynamic headroom, suboptimal operating conditions for electronic equipment, and an increased risk of failure for both the electronic equipment and transducers.
2. Despite common practice, setting the gain control based on desired music loudness is not its intended purpose. The control's range spans from 0.25 volts to 6 volts and is designed to match the output of the source unit's signal voltage. For instance, if your source unit has a low output voltage, you would likely set the control towards the 0.25V range. Head units with 4 volts of output signal voltage may have the control set midway through the range. If you use a line driver (signal booster) providing 6 volts or more, you would set the gain at the minimum position, towards the 6V range.
3. When properly level matched in these examples, the amplifier will play its source material at the maximum volume without issues. However, setting the control above the appropriate point may lead to damage to the amplifier and speakers, resulting in poor sound quality and undesirable outcomes.

BASS BOOST CONTROL
The monoblock amplifiers feature a variable bass boost control centered at 45Hz. You can adjust the amount of

boost from OdB to 12dB.

WARNING
We highly recommend that an in-line fuse or circuit breaker be installed within 18″ of the battery. Although your amplifier has adequate internal protection, it is possible a damaged wire between the component and the battery may result in a fire. The in-line fuse or circuit breaker should be installed in a location that is easy to access, and all wiring should be routed safely, following the below suggestions:

1. Avoid placing wires near hot or moving objects
2. Always use wire grommets when routing wire through the firewall or any other metal surfaces.
3. Avoid the potential for damaged wires by routing all wires away from moving hinges, seats, brake & gas pedals, hood and trunk hinges, etc.

Please read carefully before installing or operating this high powered amplifier

WARNING
Make sure you choose a suitable place to mount the unit. The position should be completely dry with a good circulation of air, and from a mechanical point of view very stable.

SPEAKER OUTPUTS

H-KO2 / **H-KO3** / **H-KO5** / **H-KO8** / **H-KO10**

MONO-BLOCK SPEAKER CONNECTION

H-KO340
4 CHANNELS SPEAKER CONNECTION CONEXIÓN DE ALTAVOZ DE 4 CANALES

WIRING CONFIGURATION EXAMPLES

STRAP MODE CONNECTION

INPUT CONNECTION

- STEP 1. Connect the master amplifier to the head-unit and set its output master / input slave switch to output master.
- STEP 2. Set slave amplifier output master / input slave switch to slave input.
- STEP 3. Connect RCA cable from the master to slave amplifier as shown in the diagram.

SPEAKER CONNECTION:

- STEP 1. Connect speaker cable (+) on master amplifier to subwoofer (+).
- STEP 2. Connect speaker cable (+) on slave amplifier to subwoofer (–).
- STEP 3. Connect speaker cable (–) on master amplifier to speaker cable (–) on slave amplifier.

IMPORTANT
The minimum trappable working impedance is 2ohm. Lower than 1ohm can damage the amplifier Working voltage : 9V to 16Volts.

H-KO2

POWER

RMS Power @ 4 ohm…… 950W
RMS Power @ 2 ohm ……1500W
RMS Power @ 1 ohm ……..2000W
RMS Power @ 0.5 ohm …….. 3600W (burst only)
AUDIO / AUDIO
Frequency Response …….. 13Hz-300Hz
Signal to Noise Ratio …… >80dB
Efficiency @ 4 ohm ……..95%
Damping Factor ……..400
Total Harmonic Distortion (THD) ……..<0.2%
Low Level Input Range …….0.2-6V
Selectable X-Over…….Fixed LPF
X-Over Filter Range ……..35-250Hz
Bass Boost Range……0-9dB
Bass Boost Frequency……..45Hz
Infrasonic Filter …… 10-50Hz
Phase Selector ……..
0/180º
FEATURES
Amplifier Class …… Digital (D)
Amplifier Type …….. Monoblock / Subwoofer
Number of Channels……1 Channel
Minimum Impedance……1 ohm
Led Indicator…….Power | Protect | Clip
Power Input Terminal Size ……1/0Ga
Fuse Size ……
180A
Remote Level Control …… Yes (Metal Case)
Cooling Fan ……Yes
Voltmeter
……Yes
Thermal Protection ……Yes
Over-Load Protection ……..Yes
DC Output Protection ……Yes
Short Circuit Output Protection ……Yes
Voltage Input Protection ……Yes
Clipping Protection ……..Yes
LED Clipping indicator …… Yes
Professional Tiffany RCA Connectors ……Yes
Remote Level Knob with Clip indicator……Yes
Linkable (Strap mode) Amplifier……..Yes

Reliable Heavy Duty Korean Board Design …… . Yes
Very High Efficiency Digital Circuit Design ……Yes
Body Color …….. H-KO2 – Black H-KO2/RD – Red

MEASUREMENTS

H-KO3

POWER

AUDIO

FEATURES

MEASUREMENTS

H-KO5

POWER

AUDIO

FEATURES

MEASUREMENTS

H-KO8

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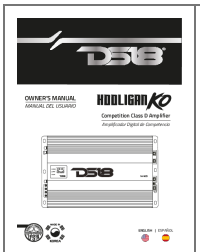
TROUBLESHOOTING

Documents / Resources

	DS18 H-KO10 Competition Class D Amplifier [pdf] Owner's Manual H-KO10, H-KO10 Competition Class D Amplifier, Competition Class D Amplifier, Class D Amplifier, Amplifier

References

- Official DS18 Pro Audio Store - Speakers, Subwoofers, Amps & More!
- User Manual