

MANUAL
GRAVITY

MK2
4G-600
4G-300
MK2

XETEC®

XETEC®
designgroup

XETEC GRAVITY MK2 SERIES 4G-300/4G-600

Congratulations for buying this **XETEC** product and thank you for your confidence! With this **XETEC** amplifier you have purchased an innovative and professional high-end product, which will enable you to enjoy your music on a very high quality level for many years. We have especially focused on electronic as well as product design to give you a product that will accompany you for many years, as our products are always one step ahead and will still be modern for many years. **XETEC** products represent the experience our engineers have made through many years assisted by car audio magazines as well as professional installers. Please read these instructions very carefully, to avoid unnecessary trouble and defects. In case of trouble, please contact your local dealer or check our website www.xetec.de for troubleshooting. There we also offer up-to-date tech-tips and technical support for you.

The **XETEC 4G-300/4G-600** is a state-of-the-art 4-channel car audio amplifier, especially developed for top quality speaker systems and subwoofers. A perfect choice are the **XETEC** Component systems and subwoofers.

You can also run each 2 of the 4 channels in bridged mode to gain more than twice the output power, in order to drive subwoofers, midbasses or high power component systems.

The versatility and many adjustment options make the **4G-300/4G-600** an allround genius for car music reproduction.

SPECIAL FEATURES

4G-300 – State-of-the-art Analog 4-channel Amplifier

- alu-magnesium diecast heatsink
- 4x70 W
- 2 Ohms stable
- Bridged mode: 2x200 W
- HPAA technology
- TOP control (all controls accessible under top plate cover)
- Highpass, Lowpass and Bandpass VCVS (=Voltage Controlled Voltage Source) filters for front and rear channels with bypass function
- Balanced RCA inputs for maximum noise suppression
- Input sensitivity 250 mV - 6 V
- Optional carEQ® module (car-specific EQ module to eliminate your car's acoustic problems)
- Full protection (DC, Overheat, Shortcircuit, Overload)
- Gold plated input terminals

4G-600 – State-of-the-art Analog 4-channel Amplifier

- alu-magnesium diecast heatsink
- 4x180 W
- 2 Ohms stable
- Bridged mode: 2x380 W
- HPAA technology
- TOP control (all controls accessible under top plate cover)
- Highpass, Lowpass and Bandpass VCVS (=Voltage Controlled Voltage Source) filters for front and rear channels with bypass function
- Balanced RCA inputs for maximum noise suppression
- Input sensitivity 250 mV - 6 V
- Optional **car-EQ®** module (car-specific EQ module to eliminate your car's acoustic problems)
- Full protection (DC, Overheat, Shortcircuit, Overload)
- Gold plated input terminals

PROPERTIES

- Independent high and lowpass filters can be configured either as highpass, lowpass or bandpass filters and combinations out of these three options.
- Each 2 channels can be run in bridged mode for higher output power
- 4-ch mode Highpass: drives 4 satellite speakers
- 4-ch mode Bandpass: drives 4 (or more) midbasses
- 4-ch mode Lowpass: drives 4 (or more) subwoofers
- 2-ch mode Lowpass: drives 2 subwoofers in bridged mode
- 2-ch mode Bandpass: drives 2 (or more) midbasses in bridged mode
- Optional **car-EQ®** module (car-specific parametric equalizer module) (see chapter 5. „**car-EQ®**“) Protection circuit: Overload, Short-circuit, DC, Overheat

SAFETY

- **Before you make any connection, the battery must be disconnected!**
- **A main fuse must be installed into the +12 V wire within the first 12" from the + terminal of the battery (insurance regulation!).**
- **Please note that a minimum speaker impedance of 2 Ohms must be maintained.**
Do not connect speakers with lower impedance in normal as well as in bridged mode!
- **Make sure that you do not use defective speakers and subwoofers. They can cause damage to your amplifier!**

The fuses inside the amplifier only protects the device itself, not the battery and the car!

IMPORTANT NOTICE: STABILITY OF AMPLIFIERS

Normal operation:

Every amplifier is only capable of driving loads (speakers) up to a certain limit, which is set either by the protection circuits or the maximum power output. XETEC amplifiers accept loads down to 2 Ohms in normal operation.

Bridged mode:

In bridged mode each two channels of the amplifier are driving the same load, the acceptable impedance for each channel is also divided by two!

That means:

A normal amplifier „sees“ 4 Ohms as 4 Ohms. In a bridged amplifier, each amplifier „sees“ 2 Ohms only!!! That’s why in bridged mode always 4 Ohms must be maintained although the amplifier might be 2-Ohms stable.

CAUTION

This product is capable of conducting very high sound pressure levels, and can thus be harmful to your health. Prolonged exposure to high volume levels can cause hearing loss!

Please use restraint on the volume control. XETEC wants you to enjoy your amplifier for a long time to come, and we do not take responsibility for hearing loss nor other health problems.

0. INSTALLATION

For safety reasons, the amplifier has to be mounted properly and fixed to the car’s body. Please fix the device using the screws that come with your product. Be careful when drilling holes, there might be wires, fuel lines or the gas tank behind a wall! Never drill holes when you do not know what’s behind. Never install signal wires close to power cables to avoid hum and alternator noise is being induced.

1. CONNECTIONS

Before you make any connections, always disconnect the battery!

1.1 First of all, connect the RCA cables coming from the radio/headunit to the respective inputs of your amplifier. Always run signal cables in

a distance to power cables and the vehicle’s factory wires to avoid induction of noise.

- 1.2 Now the speaker wires must be connected to the respective speaker terminals. Please make sure to use speakers with the correct impedance! Also make sure to connect all speakers with correct polarity to avoid phase problems which can spoil the sound of the whole system.
- 1.3 Next step is the ground connection. Check for a good grounding point using your vehicle’s chassis. Make sure that this point has good electrical contact! Some parts of the chassis might only be glued and have no contact to battery (-). Run all ground cables of the system to this point to avoid alternator whine and other noise.
- 1.4 As the next connection the +12 V cable has to be connected to the (+) terminal of the battery. Always be careful not to run this cable around sharp edges, the insulation might be damaged. For holes always use grommets!

Always use an in-line fuse in the +12 V power cable in max. 12" from the battery’s + terminal (value must meet the current requirements of the whole sound system, minimum value is 60 A).

- 1.5 The last connection is the remote wire. The headunit must always be turned off during this connection, as it might be damaged when remote output is shorted to ground!

Now you can reconnect the battery and insert the main fuse into the power cable’s fuse holder.

CAUTION: Both, the +12 V and the ground cable, must have sufficient diameter!

XETEC proposes the following minimum gauges:

Total output power of the system:

Up to 100 W:	6 mm ²	Up to 1000 W:	35 mm ²
Up to 250 W:	8 mm ²	Up to 1200 W:	40 mm ²
Up to 500 W:	10 mm ²	More than 1200 W:	50 mm ²
Up to 750 W:	25 mm ²		

Weaker Cables will reduce the performance of your system significantly, and may cause damage to your amplifiers. Weak cables also will heat-up!

CAUTION

Always replace fuses with same value. Higher values may cause damage to your amplifier, battery or car!

2. FIRST POWER-ON

- 2.1 Adjust all level controls to minimum
- 2.2 Turn on the radio at low volume
- 2.3 Increase the volume and adjust the front speaker's volume
- 2.4 Now adjust the volume ratio between front and rear speakers and subwoofer.

Xetec recommends the following crossover frequencies:

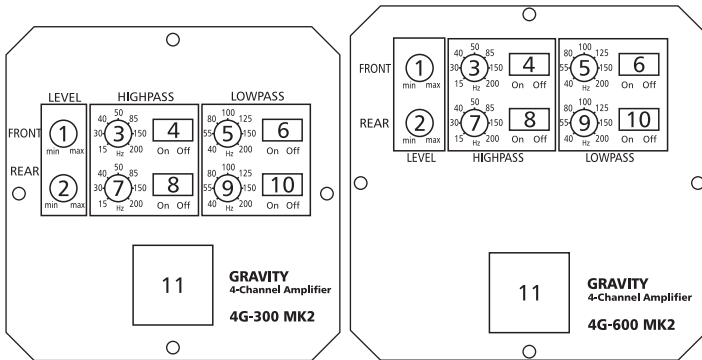
16 cm front speaker:	16 cm rear speaker:
Highpass 80-100 Hz	Highpass 100-120 Hz
13 cm front speaker:	13 cm rear speaker:
Highpass 100-140 Hz	Highpass 120-150 Hz
13 cm front speaker:	10 cm rear speaker:
Highpass 120-200 Hz	Highpass 150-200 Hz

16 cm midbass: Bandpass 80/150 Hz (= Highpass 80 Hz+ Lowpass 150 Hz),
Composystems then are run with Highpass 150-180 Hz!

Subwoofer: Lowpass 70-100 Hz, Subsonic 20-35 Hz

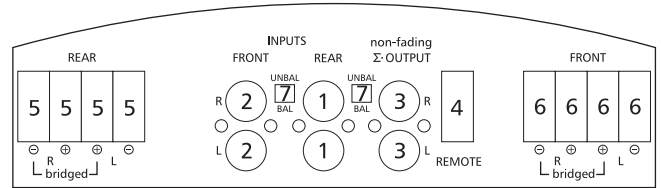
3. CONTROLS

All controls are accessible under the aluminium top cover. For adjustments, remove the top cover using the hexa screwdriver that came with your product.

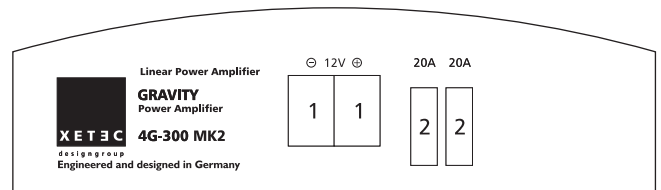


- | | |
|-----------------------------|---|
| 1 Level front | 9 Rear lowpass |
| 2 Level rear | 10 Bypass for rear lowpass |
| 3 Front highpass | 11 Logo / Diagnostic LED |
| 4 Bypass for front highpass | LED off: Amplifier is off |
| 5 Front lowpass | LED Blue: Amplifier is ON and working correctly |
| 6 Bypass for front lowpass | LED RED: Protection activated. |
| 7 Rear Highpass | See #6, troubleshooting |
| 8 Bypass for rear highpass | |

4. CONNECTORS (4G-300/4G-600)



- | | |
|--|-------------------------------|
| 1 RCA line inputs front (left and right channels) | 4 Remote terminal |
| 2 RCA line inputs rear (left and right channels) | 5 Rear speakers |
| 3 Σ -Output (non-fading mono output of all 4 inputs for additional subwoofer amplifier) | 6 Front speakers |
| | 7 Bal/unbal selector switches |



- 1 +12 V and ground power input
- 2 Fuse(s)

BAL/UNBAL SELECTOR SWITCHES:

All GRAVITY MK2 series amplifiers are equipped with selector switches for balanced or unbalanced input mode operation, in order to prevent noise induction by ground loops.

Alternator whine and other noise induction is mostly caused by improper ground connections of the components like radio, equalizer, processor, amplifier etc.

Unless all of them are grounded in **one and the same** grounding point on the car chassis, noise may occur due to different ground potentials.

There is only one way to avoid these effects: Selection between balanced or unbalanced input mode of the amplifiers.

USAGE:

The amplifiers are factory-set to „balanced“. If noise occurs, all switches should be set to „unbal“. For noise suppression, it is also allowed to set a number of switches to „bal“ and others to „unbal“, in order to find the perfect combination.

In case the noise problem still cannot be solved 100%, the ground wiring must be revised and optimised.

5. car-EQ (optional accessory)

For **XETEC** Gravity series models 4G-300, 4G-600 and 5G-900 the optional **car-EQ®** equalizer module is available as an accessory. The **car-EQ®** equalizer is engineered to optimise your sound system by compensating for the vehicle's acoustical problems. Every car model has its characteristic acoustical problems, caused by resonances, reflections and peaks generated by the shape of the interior regardless which kind of speakers are used.

These individual curves have been recorded by **XETEC** engineers and programmed into the **car-EQ®** module, which exactly reverses these errors for compensation.

The result is an enhanced sound quality without the vehicle's acoustical errors.

Actually not even the best loudspeakers can reproduce music in a car as it is, since the acoustical errors are always added.

The **car-EQ®** module can be purchased as an accessory. A bypass module is factory-installed and can be replaced by the **car-EQ®** module. For installation of the **car-EQ®** equalizer, the scale plate under the top cover has to be removed.

Before you open the amplifier to exchange the modules, make sure that it is switched off!

Damage will occur to your speakers and amplifier, if the module is exchanged during operation!!!

The **car-EQ®** module contains up to 10 independent equalizer bands for the front and rear channels as an error correction for your specific car model. Ask your local dealer for a list of car models or get it on our website www.xetec.de.

APPLIED TECHNOLOGIES

- HPAА © by **XETEC** design group GmbH: „High Precision Analog Amplifier“, symmetrical State-of-the-Art power amplifier
- X-SMPS © by **XETEC** design group GmbH: „x-Switched-Mode-Power-Supply“, high efficiency power supply
- VCVS-Filter © by **XETEC** design group GmbH: „Voltage Controlled Voltage Source“ filters for the crossover networks
- X-protect © by **XETEC** design group GmbH: Highly sensitive protection circuits
- **car-EQ** © by **XETEC** design group GmbH: Car-acoustical error correction circuit (for specific car model)

TECHNICAL DATA

XETEC 4G-300 MK2

RMS Output power @4 Ohms:	4x70W
RMS Output power @4 Ohms:	2x200W in bridged mode
RMS Output power @2 Ohms:	4x100W
Max input Current (@13,8V):	33A
Idle current (no signal):	1,2A
Max Current (@13,8V):	30A
Fuse:	2x20A
Total Harmonic Distortion (THD):	<0,02%
SNR:	>92 dB(A)
Freq. Response (bypass mode):	5 Hz-30.000 Hz (in bypass mode)
Damping Factor:	>200 (50 Hz)
Stability:	>2 Ohm, (>4 Ohm in bridged mode!)
Input Sensitivity:	250 mV-6 V
Crossover frequencies:	40-200 Hz lowpass 15-200 Hz highpass adjustable
Ground lift (balanced / unbalanced)	
Warranty:	1 year, 2 years in EU

XETEC 4G-600 MK2

RMS Output power @4 Ohms:	4x110W
RMS Output power @4 Ohms:	2x380W in bridged mode
RMS Output power @2 Ohms:	4x180W
Peak output power:	950W total
Max input Current (@13,8V):	95A
Idle current (no signal):	1,5A
Fuse:	2x30A
Total Harmonic Distortion (THD):	<0,02%
SNR:	>92 dB(A)
Freq. Response (bypass mode):	5 Hz-30.000 Hz (in bypass mode)
Damping Factor:	>600 (50 Hz)
Stability:	>2 Ohm, (>4 Ohm in bridged mode!)
Input Sensitivity:	250 mV-6V
Crossover frequencies:	40-200 Hz lowpass 15-200 Hz highpass adjustable
Ground lift (balanced / unbalanced)	
Warranty:	1 year, 2 years in EU

TROUBLESHOOTING

1. Power indicator LED in top plate is not lit
 - Main fuse or fuse in amplifier blown?
 - Remote wire properly connected? Is there remote voltage (12 V)?
 - Amplifier overheated?

2. Power indicator LED in top plate lights RED

- Protection active. Check the speakers and speaker wires for short-circuit!
- Battery voltage low (<10,2 V)?
- DC on one of the speaker outputs?
- Overload

3. Distortions at medium level

- Please check the speaker connections for short-circuits
- Are the speakers OK?
- Radio volume turned up too high. Better turn up the amplifier's level controls

4. Alternator whine and similar noise

- Bad ground connections?
- Use ONE ground contact only!
- RCA cables run too close to power cables?

In case of further trouble, please ask your local **XETEC** dealer for support.

XETEC DESIGN GROUP GMBH
LENGERICHER LANDSTRASSE 30
D-49078 OSNABRÜCK
PHONE +49-541-750450
FAX +49-541-7504545
E-MAIL: INFO@XETEC.DE

