# Clean Power Console


## POWERGRIP

## YG-3

Clean Power and Smart Protection for your A/V system

v 1.3

Dear customer, thank you for purchasing the POWERGRIP YG-3 Clean Power Console. You have purchased a power unit with excellent filtering quality, a high level of protection and rich control functionality. Before you start using the console, we strongly recommend that you read this manual through to the end. This information will allow you to fully use all the features of the power console and increase the performance of your system.

If you have any additional questions, you can always get professional advice from our specialists.

We hope you enjoy using our products.

Sincerely yours,
POWERGRIP.
www.powergrip.com

Thank you for using this online manual instead of printing it. This helps to save our planet and enables us to edit the manual from time to time to make sure it is up-to-date, complete and easy to understand.

Please make sure you are using the manual for the respective product version. The product version can be found in the device menu / information section.

This manual is for version 1.3 (for devices with serial number 23000000 and more).

# Warranty

A 1-year warranty covers all malfunctions caused by manufacturing faults.

Warranty void in case:

- Any work is done inside YG-3 without prior confirmation with the manufacturer.
- Any liquid inside the console.
- Any foreign matter inside the console.

After the warranty period has expired, free repair may only be possible if confirmed by the manufacturer.

# Safety Instructions

• Connect the POWERGRIP Console directly to a stationary grounded power outlet. Do not connect with an extension cord, power distribution unit, UPS, protection device or voltage stabilizer unless approved by the manufacturer.

• Do not expose the unit to moisture. Use indoors only.

• In case of a device malfunction only use an authorized POWERGRIP service facility.

• A vibration damper is fitted inside. Do not shake, turn over the unit or put it on its side.

• To ensure proper filtration and protection, all powered devices in your AV system need to be connected to a POWERGRIP console.

• Any kind of incoming antenna cables must be grounded with the connector supplied.

• Connect with correct Live/Neutral alignment only (12).

• This power console can withstand significant power surges, but it’s recommended to disconnect the console's power plug from the mains during a thunderstorm.

• In case of a direct connection to the mains with a power line RCC (Residual Current Circuit) ‘Circuit Breaker’ an over Current Protection for 16A / 25A must be used.

# What is in the box:

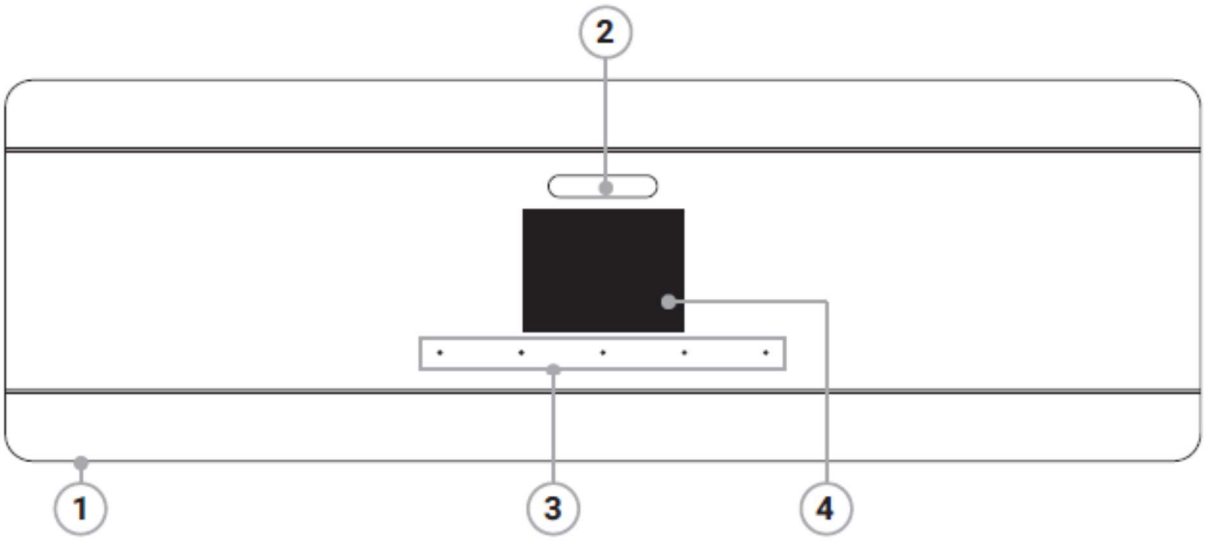
- YG-3 Clean Power Console
- Power cord IEC-C19-Schuko 2m
- 3RU Rack mounts
- Antenna grounding cord
- Blank plate cover, to be used in case of direct power cord connection

# Useful knowledge:

- Trigger input got optical isolation and support pass through mode. It will help you avoid ground loop caused by trigger connection between processor and amplifier.
- IFTTT service can help you to connect different IoT devices.

NOTE: Manufactures can change device specification without notification.

**FRONT PANEL**




1. Main Power On/Off hardware switch (located underneath the unit I/O).

2. Touch sensor:

- Short press starts sequential power on/off of the sockets.
- Long press to enter Menu.

To disable demonstration mode enter Menu --> Display --> Choose style.

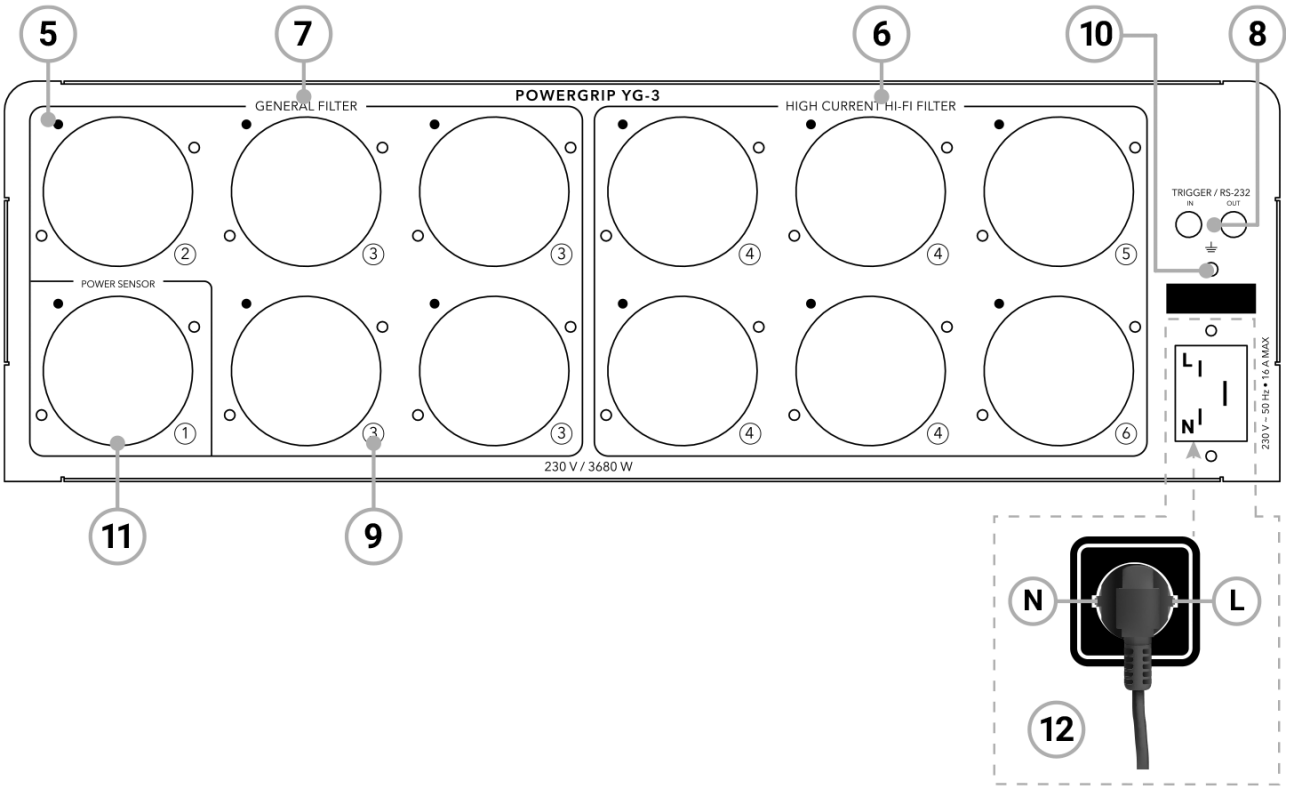
3. Assignable touch sensors (the led indicator shows assigned function status).

While in menu: use left and right to move the cursor, and the middle to enter / change.

4. Display.

**Note:** For English language menu press "🌐" (the centre button) during the initial 'boot up' screen.

**REAR PANEL**




5. Dot shows Live (“hot”) pin alignment in the socket if console powered correctly (12).

6. HIGH CURRENT HI-FI FILTER section. Sockets for Hi-Fi equipment and amplifiers.

7. GENERAL FILTER section. Sockets for other types of equipment.

8. Trigger input for control by 3rd party devices. Can operate as RS232 input (see www.powergrip.com for more information). Output is to control 3rd party devices.

9. Socket group number.

10. Ground terminal. Must be connected if several power consoles are used together.

11. Socket with entire console Power On/Off Auto sensor. Can be used to turn on/off console by change of connected device power mode.

# Settings menu

To enter the menu press and hold Main button (2) until you will see the menu on screen. Please be aware that changes of settings can result in unexpected power status of connected devices.

## Root menu:

| | |
|---|---|
| Exit | -Exit |
| Filtering | -Filtering settings and protection time settings |
| Display | -Display settings |
| Control | -Power groups, trigger out |
| Wi-Fi | -Wi-Fi setup |
| Sequencer | -Power groups on/off timing settings |
| Integration | -Auxiliary control settings |
| Information | -Device information |
| Save | -Press 'Save' to save your settings. If you do not save your settings after making changes, the settings will be restored to the previous values after on/off or protection has been triggered. |

## Filtering:

| | |
|---|---|
| Filter | -Trigger options for filter state. Go to Trigger options list for details. |
| Filt. Dumper | -Trigger options for filter Dumper state. Go to Trigger options list for details. Does not operate if the Filter option is not activated. |
| DC filter | -Trigger options for DC filter. Go to Trigger options list for details |
| Auto Threshold | -Amount of DC voltage to trigger DC filter. |
| Ground indicator | -Turn off ground indicator. This may be required in TT (functional earthing) power systems if the neutral to ground voltage is high. |
| Protect time | -The amount of time after protection is triggered when the console is off and blocked. After this time period the console will be restarted. |

**Trigger option list:**

| | |
|---|---|
| <Power ON> | -Activation at power on. |
| <Sens.btn1> | -Activation with sensor 1(enumeration from left to right) * |
| <Sens.btn2> | -Activation with sensor 2(enumeration from left to right) * |
| <Sens.btn3> | -Activation with sensor 3(enumeration from left to right) * |
| <Sens.btn4> | -Activation with sensor 4(enumeration from left to right) * |
| <Sens.btn5> | -Activation with sensor 5(enumeration from left to right) * |
| <Trigger> | -Activation with trigger input. |
| <I Group1> | -Activation with current drain from Group1. Check Control menu for settings. Group1 must be set to 'always ON' to let this function work. Go to Commutation Menu to set Group1 to 'always ON'. |
| <Amb.Light> | -Activation with illumination of YG-3. The Threshold can be set in the 'Display' section of menu. 'OFF Threshold' controls the level of activation. In case the display is set to auto option, when the display is turned off/on this function will trigger as well. |
| <OFF> or <----> | -No trigger option assigned. |
| <Auto> | -Automatic activation. *Can be set for DC blocker only. |

*Sensor button LED shows assigned state. If more functions are assigned, those are controlled together.

# Display:

Brightness -Display Brightness level.
- Auto -automatic brightness by light sensor.
- Auto2 -same with less light to brightness response.
- 0...10 -static value.

OFF Threshold -illumination level (conventional units) at which display turns on in auto mode. This setting also controls turn on by brightness function.
- 0...MAX -more value needs more illumination to turn on display.

Auto level -Auto brightness sensitivity.
- 0...MAX -less value, less brightness with same illumination.

Style -Indication style of voltage on Display.
- <Retro> -Retro font.
- <Digt.> -Digital font.
- <Dots> -Dots font.
- <Arrow> -Analog arrow meter without background.
- <Arrow2> -Analog arrow meter with color background.
- <Oscil.1> -Oscilloscope meter without background.
- <Oscil.2> -Oscilloscope meter without background.
- <Demo> -Demo mode for shop. Auto style change.

Indication -Amount of display information.
- OFF -Display turned off.
- Min -Voltage only
- Full -All available information.

Color -Indication color.

Bg. color -Color of sensor buttons in off function state.

OFF brightness -Brightness in case the Sequencer is in the 'off' state.
- 0...4 static value.

- <Dots> - Display is off. only buttons is lighted.
- 3%...100% reduction in percent from sequencer on state.

# Key lock:

To lock the touch sensors while in the main menu, hold the sequencer (2) button until you see the 'lock' message. If you want to keep the lock after power on/off, select 'save' option. After lock is activated to use sensor buttons hold sequencer button. It will unlock button for 20 seconds. After 20 second buttons will be locked automatically.

To unlock repeat the lock sequence.

# Control:

Group 1 -Group 1 does not have individual relay and power on with the main input relay. The main relay can be always turned on. In this case, Group 1 will always be powered. (Or in case all other groups are turned off, Group 1 can also be turned off.) Group 1 will only be powered if any other group is powered on.

Group 2...6 -Trigger options for Group 2...6 state. See 'Trigger options' list below for details. The Sequencer also control Groups. Go to the Sequencer section of manual.

Trigger out -Trigger options for the Trigger out state. See trigger options list below for details. The Sequencer also controls trigger out. See sequencer section of this manual for more details.

Sensor mode -The way of sensor buttons operation.
<Short> – short press to activate
<Long > – long press to activate
<Confirm> – press two times to activate

**Trigger option list:**

<Power ON> -Activation at power on.
<Sens.btn1> -Activation with sensor 1(enumeration from left to right) *
<Sens.btn2> -Activation with sensor 2(enumeration from left to right) *
<Sens.btn3> -Activation with sensor 3(enumeration from left to right) *
<Sens.btn4> -Activation with sensor 4(enumeration from left to right) *
<Sens.btn5> -Activation with sensor 5(enumeration from left to right) *
<Trigger> -Activation with trigger input.
<I Group1> -Activation with current drain from Group1. Check Control menu for settings. Group1 must be set to 'always ON' to let this function work. Go to Commutation Menu to set Group1 to 'always ON'.
<Amb.Light> -Activation with illumination of YG-3. The Threshold can be set in the 'Display' section of menu. 'OFF Threshold' controls the level of activation. In case the display is set to auto option, when the display is turned off/on this function will trigger as well.
<OFF> or <----> -No trigger option assigned.

*Sensor button LED shows assigned state. If more functions are assigned, those are controlled together.

# Wi-Fi:

Wi-Fi Power -Wi-Fi module activity (On/Off).

Connect to Wi-Fi -select to connect to local Wi-Fi:

1) connect to 2.4Ghz Wi-Fi (5Ghz is not supported)
2) install eWelink Smart Home Center IoT App on your smart device (https://www.ewelink.cc/en/)
3) push "+" button in the bottom of the App
4) select quick pairing
5) add a device
6) select "connect to Wi-Fi" option in YG-3 menu
7) follow instructions in the App
8) use "Link Ch1..4 to" to connect App button to respective YG-3 sensor button.
9) change button name in the App according to the function

In case no device found:

1) start search again.
2) keep app running and go to phone Wi-Fi settings.
3) Connect to Wi-Fi manually.
   net name - "ITEAD*****"
   Password - "12345678".
4) get back to eWelink APP.

Wi-Fi status -status of Wi-Fi connection.

Link Ch1..4 to -the App has 4 control buttons. Those can be assigned to sensor buttons of the YG-3.
<Sens.btn1> -Link to sensor button 1 (enumeration from left to right)
<Sens.btn2> -Link to sensor button 2 (enumeration from left to right)
<Sens.btn3> -Link to sensor button 3 (enumeration from left to right)
<Sens.btn4> -Link to sensor button 4 (enumeration from left to right)
<Sens.btn5> -Link to sensor button 5 (enumeration from left to right)
<Sequencer> -Link to Main Sequencer button (top button).
< ---- > -not linked.

# Sequencer:

Group 2..6 on -Group turn on delay.
< ---- > - sequencer will not trigger this group. (This group control can also be set in commutation menu).

Trigger on -Trigger turn on delay.
< ---- > - sequencer will not change trigger output state. (Also trigger output control can be set in commutation menu)

Aux control -Additional option to start sequencer. See Trigger options list for details.

Next -> -go to next page

Group 2...6 off -Group turn off delay.
< ---- > - sequencer will not trigger this group. (Group control can also be set in the commutation menu).

Trigger off. - Trigger turn off delay.
< ---- > - sequencer will not change trigger output state. (Trigger output control can also be set in the commutation menu)

Aux control2 -2nd additional option to start sequencer. Go to Trigger options list for details.

Sensor mode -The way of sensor button operation.
<Short> – short press to activate
<Long > – long press to activate
<Confirm> – press two times to activate

IRx on Time to send IR command (x - learned remote IR button 1…6) when sequencer is going on.

Command with ending “Aux1” – will be sent if sequencer was started by aux1 command.

Command with ending “Aux2” – will be sent is sequencer was started by aux2 command.

Mode IRx Some remotes send two codes in toggle.

Code 1 – send code 1

Code 2 – send code 2

Code 0+1 – send zero code before command. It will reset toggle on some devices.

T local – send in toggle

T global – common toggle for all commands with same coding.

x2 – send code 1 two times in series.

x20 – send 20 times.

Code 1+2 – send two codes in series.

IR1 off Time to send command 1 when sequencer is going off.

IR2 off aux2 Time to send command 1 when sequencer is going off switched by aux2.

# Integration:

| | |
|---|---|
| Group 1 current: | -Current drain from group 1. Group 1 must be on to let this function work. go to commutation menu to set it. |
| On threshold | -The amount of current to turn on assigned function. < I Group1> must be assigned to any function in commutation or sequencer menus.<br>0 - function is disabled.<br>Group 1 must be set always on to let this function work. |
| Off threshold | -Assigned function will be turned off below this value. < I Group1> must be assigned to the function in commutation or sequencer menus.<br>0 - function is disabled.<br>This function value mast be lower than "On threshold". |

How to set threshold:

1)Turn On device connected. Set on threshold a little less than current consumption value. If console turn on will be unstable set it one step less.

2)Turn connected device into standby mode. Set off threshold a little more than current consumption value. On threshold must higher than the off threshold.

| | |
|---|---|
| RS232 address | -RS232 address for control system. |
| RS232 terminal | -terminal for RS232 test. |

**IR REMOTE:**

| | |
|---|---|
| Bt.x | -Assign learned button on a remote to control any sensor button of YG-3.<br>(x – Learned remote button)<br>On – turns button on only<br>Off – turns button off only<br>Toggle – toggles button states. |
| Learn button x | -x – Memory bank to learn remote button<br>7 buttons can be learned. Follow onscreen instruction to learn. While learn is selected it is possible to enter code manually.<br>Sensor button 1 can be used to send learned IR command. |
| Send IRx | -Options to send IR command. See command list. Command list is common for all menu options. |
| Case IRx | -Toggle – send command at any function state change.<br>-ON – send when function is turned ON.<br>-OFF - send when function is turned OFF. |

| | |
|---|---|
| Mode IRx | -Some remotes send two codes in toggle.<br>-Code 1 – send code 1<br>-code 2 – send code 2<br>-code 0+1 – send zero code before command. It will reset toggle on some devices.<br>-T local – send in toggle<br>-T global – common toggle for all commands with same coding.<br>-x2 – send code 1 two times in series.<br>-x20 – send 20 times.<br>-code 1+2 – send two codes in series. |

To use IR send function IR emitter should be attached to trigger output of the YG-3.

Not included in a kit!

# Information:

| | |
|---|---|
| Online time | -Online time. any power fault will cause timer reset. |
| Grounding | -Information about grounding |
| Model | -Device model |
| Firmware | -Firmware version |

# Save:

Select ‘Save’ to save the settings made in the menu. If you do not save your settings, they will reset to previous values after on/off or a power fault reset.

The saved settings will come into effect after exit from the menu.

# Display


1) Mains voltage sine wave cut in percent - represent the load of the building mains cables.
   4% or more - poor wires or wires overload.
   6% or more - a critical wiring condition.

2) Sequencer on state indicator - Appears after Sequencer was started and next button press will lunch sequencer turn off sequence.

3) Voltage flicker - voltage pick fluctuation for one minute. High flicker can cause connected devices fault even with normal voltage.
   5V or higher - high stress to connected devices. May reduce life of the connected devices.
   11V or more - there is a risk of damage to the connected devices. It is recommended to call professional electrician for help

4) Mains frequency - indicate the load of the national power system.
   49,95 Hz or less - heavy load.
   49,90 Hz - power system critical situation.

5) Filter mode. See filtering section of this manual.
    - filter + dumper.
    - filter

6) Grounding indicator. Appears in case of grounded console connection. If "!" is shown it means that there is critical connection issue. Please refer that console is connected according to connection diagram (12).

7) DC filter state.

8) DC over mains value – indicates a mains voltage unbalance. DC forces power transformers to make more noise. Usually after value of +-50mV transformers starts to make noise. By default, the console turns on the DC filter if the value is more than +-60mV during 20seconds. The settings can be changed in the filtering section on the menu.

9) Wi-Fi indicator. Appears during connection or in case of a connection error. After successful connection there will be no indication.

10) IR emitter in operation (RED color).

# Filtering

## Hi-Fi High Current filter section:

This is designed for Hi-Fi devices and high-power amplifiers and features a special design with low output impedance to reduce device to device interference. Wide cooper traces provide current to amplifiers without limitation.
Because the filter construction avoids any resonances this filter can do filtering in the audio range without adding distortion and additional noise. Also, our unique filter design allows you to change the filtering parameters yourself. The filtering options can also be controlled remotely.

There are 3 filter modes:
1) Minimum filtration - in this mode the minimum filtering required for device protection is applied only.
2) Maximum filtration - Maximum filtration for high noise filtering.
3) Filtering with dumper - this provides less filtering but introduces better resonance dumping and reduces noise generation by connected devices themselves. This also reduces device to device interference.

Filtering can be setup in a menu:

Filter <OFF> - Minimum filtering.
Filter <Power ON> - Maximum filtering.
Filt. Dumper <OFF> - Filtering without dumper.
Filt. Dumper <Power ON> - Filtering with dumper.
Filt. Dumper comes in to play if Filer option is turned on only.

If any other option is selected as trigger, the filter state will depend on the state of that option.

## Hi-Fi High Current DC filter:

By default, the filter is in automatic mode and will be applied if the DC value is more then 60мВ during a 20 second period. Settings can be changed in the menu. Constant states are available as well.

In case an amplifier with a switch mode power supply is connected, the DC filter must be turned off.
To verify power supply type contact amplifier manufacturer details.

## General filter section:

This filter section is for devices with switch mode power supplies. Inductors made of superior nanocrystalline material provides very high filtering with small losses and block noise from leaking into the Hi-Fi section.
The Filter can work well in the audio range because resonances are avoided in our filter design.

It is recommended not to connect devices into the audio signal path with switch mode power supplies (amplifiers are an exception). Please contact the device manufacturer to verify the power supply type.
Example of such devices: TVs, settop box, external PSU from small/mobile devices, turntable motors, PC's.

Audio related devices with switch mode power supplies can be connected to both filter types. The most appropriate filter can be selected by doing a listening test.
A mechanical dumper PCB with filters is fitted in the console to avoid influence by mechanical noises. This removes potential feedback from speakers.

# Protection

The POWERGRIP YG-3 Pure Power console is equipped with high grade protection. It consists of three levels:

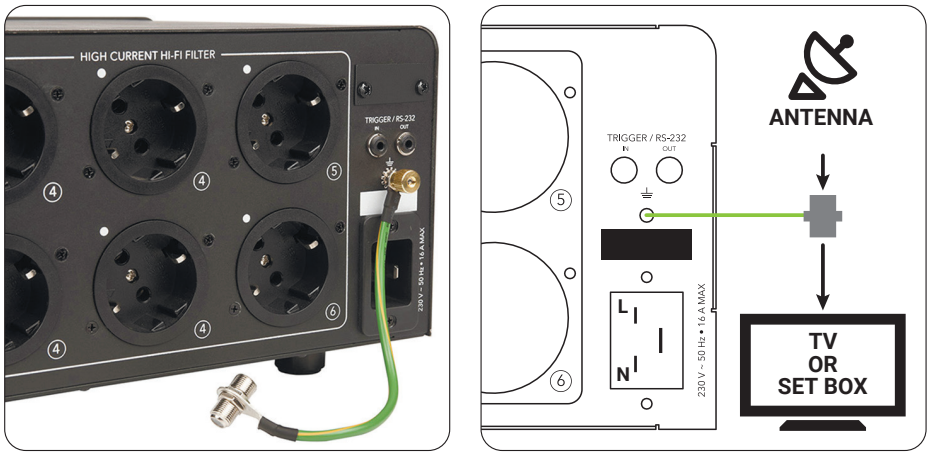
1) Filter - blocks noise and small voltage spikes.
2) MOV protection - Absorbs high voltage spikes.
3) Relays - turn off power if voltage is over a high limit or if the MOV is overloaded.
You can therefore be sure that mains troubles will not damage your equipment.

The console itself can continuously operate at voltage up to 320V. In case the voltage is more than 320V a simple fuse replacement will be needed.

# Proper mains connection system

The YG-3 detects the existence of the ground and the proper connection phase.  In case ground exists, and the YG-3 power plug is connected with the wrong phase, operation of the unit will be blocked.
If grounding doesn't exist, or the power line does not comply with TN standard this function is not available. In this case you need to connect YG-3 as shown on diagram 12 by using a phase detecting tool.

# Antenna grounding connector




In case an antenna is used in your system it is important to use the supplied antenna grounding cable. Failure to do this can reduce filtering quality and void the protection function.
Connect the cable from the kit with the YG-3 grounding terminal (11), then connect the antenna to the connector on the other side of the cable. The cable is not directional.

# Specification:

1) Voltage range for safe continuous operation of YG-3 PSU:  160-320 V.
2) Protection voltage range (turn off connected devices): low - 190V, high - 256V.
(May be influenced by other parameters like mains distortion to provide best protection and exclude false triggering)
3) Maximum current of the internal wiring of the console: 25A
4) Maximum current of power cord and power socket: 16A
5) Self power consumption: 1.4W-20W depends on used features.
6) Consumption in case of full power off by button 2:  0Вт.
7) Neutral pass-through resistance: 0,00005 Ohm.
8) Live pass-through resistance (high current hi-fi filter without fuse and fuse holder): 0,015 Ohm.
9) Fuse: Resistance 0,01Ohm (with holder), size 5x20mm, current 16A.
10) Power cord section: 3,3mm2.
10) Section of the internal wiring: 3.3mm2 (Hi-Fi filter)
12) DC measure range +999мВ.
13) Maximum filtering DC value: 1,8V.
14) Maximum on/off delay: 60Sec.
15) Operation temperature range: 10 - 40 °C
16) Weight of the console: 7,6Kg.
17) Maximum weight of device placed on top of YG-3:  10Kg.
18) Alignment: horizontal only.
19) Height with feet 156,5mm
20) Depth 280mm without connectors.
21) Width 440mm front panel (43cm/19”).
22) Box size: 56 x 41.5 x 28cm
23) Weight in the box:10,5Kg.

# Warranty

A 1-year warranty covers all malfunctions caused by manufacturing faults.

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- Any foreign matter inside the console.

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# Useful knowledge

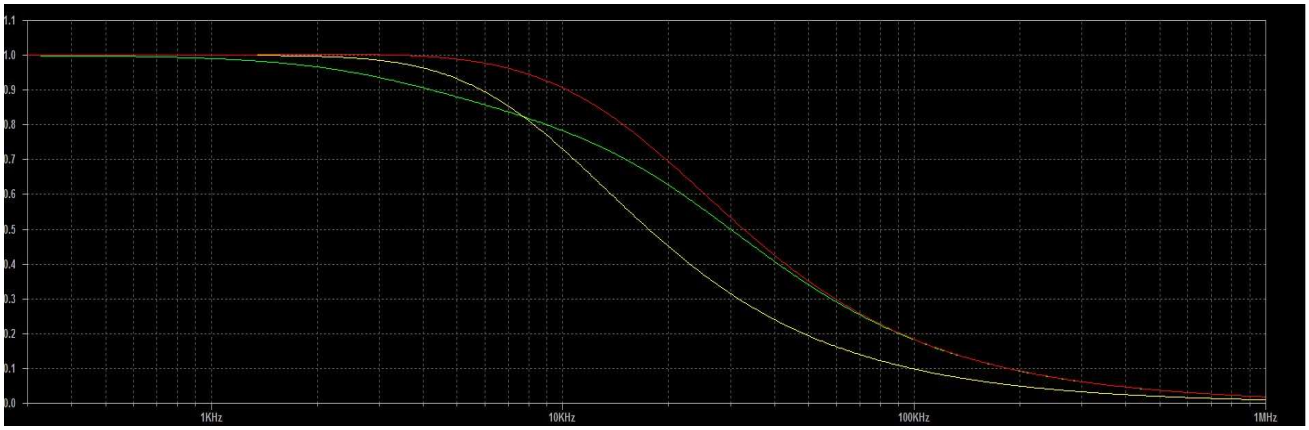
- Trigger input got optical isolation and support pass through mode. It will help you avoid ground loop caused by trigger connection between processor and amplifier.
- IFTTT service can help you to connect different IoT devices.

NOTE: Manufactures can change device specification without notification.

# High current Hi-Fi Plot:

Filtering from mains to devices.

Differential mode:




RED - Filter option in off state.

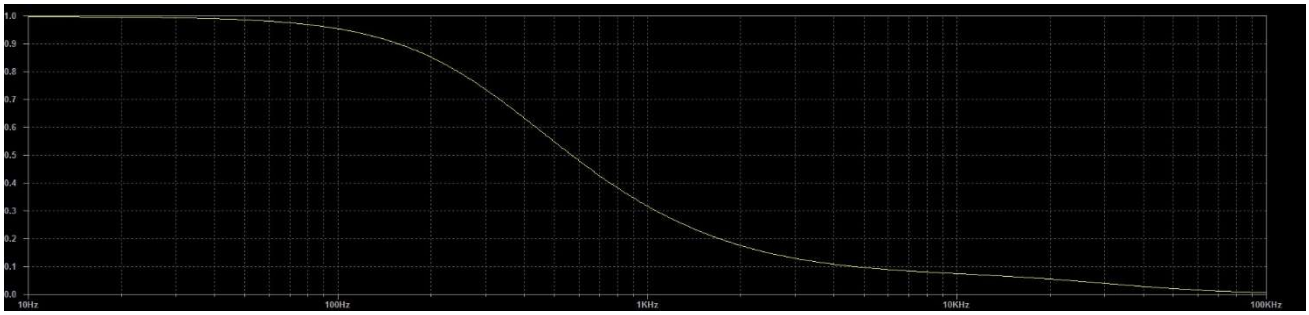
Yellow - Filter option in on state. Dumper is off.

Green - Filter option in on state. Dumper is on.

# General filter plot:

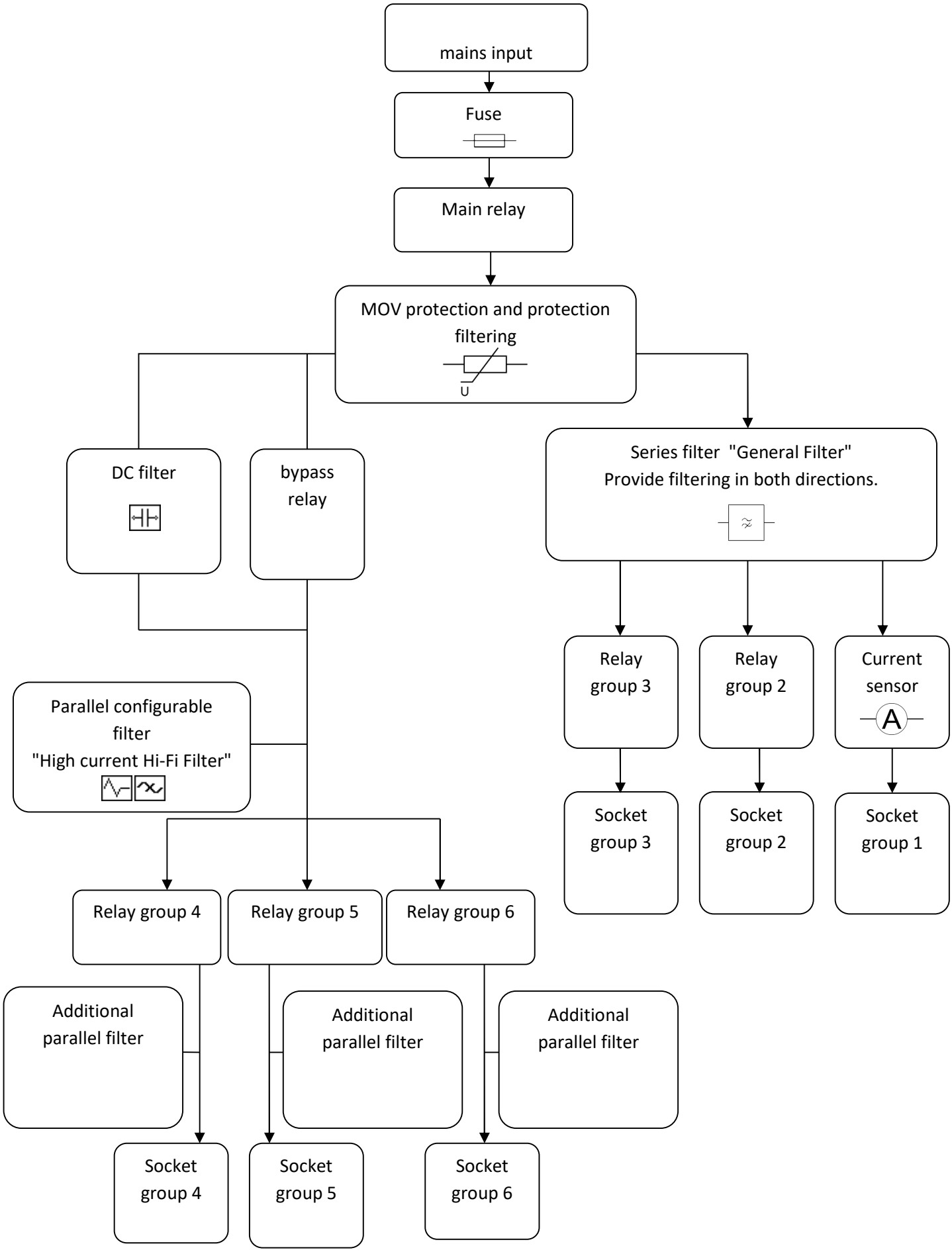
Filtering from devices to mains.

Differential mode:




common mode:

# Block diagram:



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