

F Two

Operating Manual

操作手册

GENELEC®



F Two Active Subwoofer



General description

The Genelec F Two is a very compact active subwoofer designed to complement up to five Genelec G One or G Two active loudspeakers as a .1 / LFE channel subwoofer in a 5.1 system or a pair of the slightly bigger G Threes. Linked together two F Two's can also be used with G Fours. The F Two extends the system's bass response down to 27 Hz and integrates perfectly with the main loudspeakers in any environment. The playback level for the whole system is conveniently controlled by the wireless volume control provided with the subwoofer. A wired volume control is available as an option.

The F Two has integrated bass management for the two output channels which directs frequencies below 85 Hz to the subwoofer and higher frequencies through the output connectors to the main loudspeakers. When using the subwoofer for the .1/LFE channel of a multichannel system, we recommend that bass management is done in the processor or receiver and only the LFE channel is connected to the subwoofer.

Installation

Before connecting the audio signals, ensure that all equipment is switched off.

As the F Two contains its own amplifier, no separate power amplifier is needed. Never connect the F Two to the loudspeaker outputs of a power amplifier, integrated amplifier or receiver.

Please follow the steps listed below for a successful setting up of the subwoofer:

1. Check the contents of the shipment. In addition to the subwoofer, there is a wireless remote control, a mains cable, an IR extension cable and a Quick Setup Guide.
2. Pull out the battery insulating strip from the underside of the remote control as shown in figure 1. This strip insulates the battery from the contacts on the remote control during shipping and the remote control does not function before it is removed.
3. Place the subwoofer in its position.
4. Connect audio cables from your signal source(s). You can connect up to two digital audio sources and two analog audio sources.
5. Connect the main loudspeakers to the output connectors of the subwoofer. You can use either balanced XLR or unbalanced RCA connectors.
6. Set the "LEVEL +10" and "-10 dB" switches on the subwoofer and main loudspeakers according to Table 2 on this manual.
7. Adjust the phase of the subwoofer as instructed in this manual and the Quick Setup Guide.
8. Use test recordings and familiar music pieces to judge the sound balance. Use the "SUBWOOFER LEVEL" rotary control and the "BASS ROLL-OFF" dip switches to fine-tune the balance. If this fails, consider relocating the subwoofer.

Operating Environment

The F Two subwoofer is designed for indoor use only. The ambient temperature should be 15-35 °C (50-95 °F) and the rela-

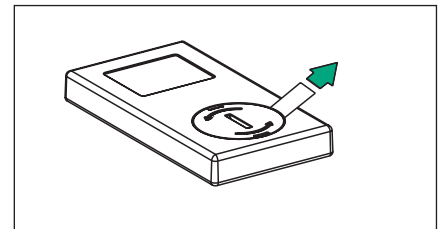


Figure 1. Removing the battery insulating strip from the remote control

tive humidity 20-80 %. Condensation is not allowed. If it has been stored or transported in a cool environment, the product must be allowed to warm up in its packing to the ambient temperature before connecting mains power.

Connectors

The F Two is equipped with both analog and digital signal input connectors, that can be used simultaneously to connect up to four audio sources (two analog, two digital). Switching between sources is done with the Select button on the connector panel or with the "<" and ">" buttons on the remote control. The colour of the LED light on the subwoofer enclosure indicates which source is selected.

Analog Input Connectors

The F Two has two stereo inputs (3.5 mm jack and L/R RCA connectors) and an LFE/LINK RCA connector. The stereo inputs are parallel, so you can connect two audio sources at the same time, just play only one of them at a time. The Select function does not work between these two inputs. The LFE/LINK input is used for the LFE

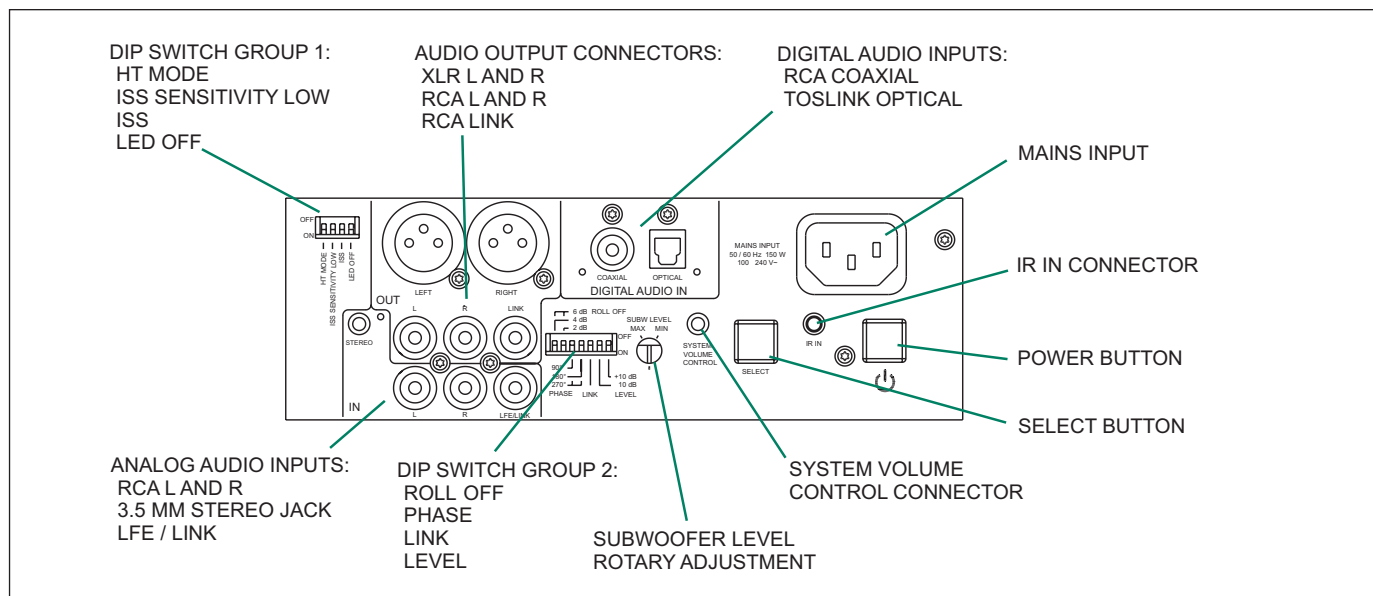


Figure 2. Connectors and controls of the F Two.

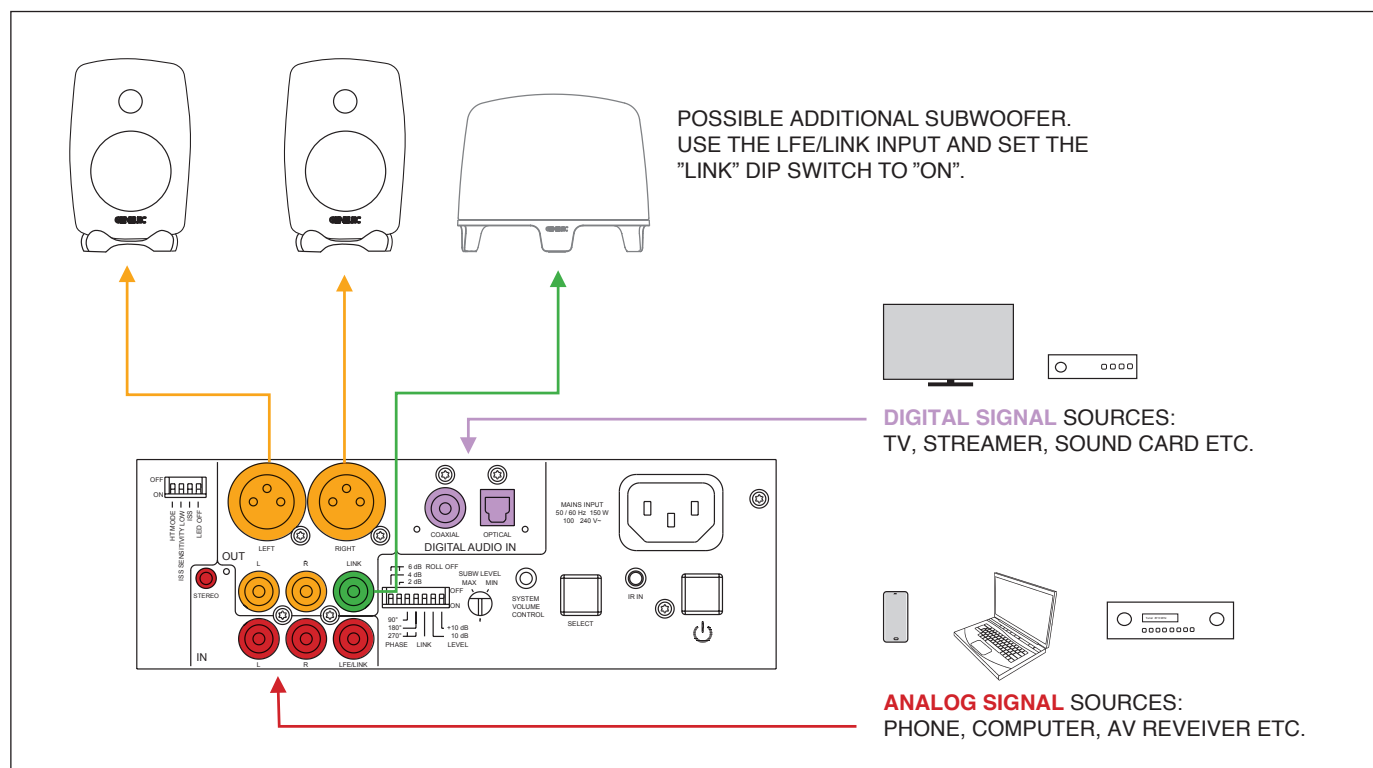


Figure 3. Audio cabling

(.1) signal in a 2.1 or 5.1 channel sound system or as the signal input in a multiple subwoofer system (see chapter Using Multiple Subwoofers). The LFE/LINK input has a 120 Hz low pass filter, so it is not suitable for full frequency range signals.

Digital Input Connectors

The F Two has two digital signal input connectors, one coaxial and one optical, that accept stereo PCM format digital signal. You can connect two digital sources and switch between them using the Select function.

Analog Output Connectors

The F Two has two pairs of analog stereo L/R output connectors, one with RCA connectors and the other with balanced XLR male connectors. Connect signal cables from these connectors to the main speakers. Both connector pairs carry the same

Subwoofer placement	Bass Roll-Off
Near a wall	-2 dB
In a corner	-4 dB

Table 1. Suggested Bass Roll-Off settings in typical situations

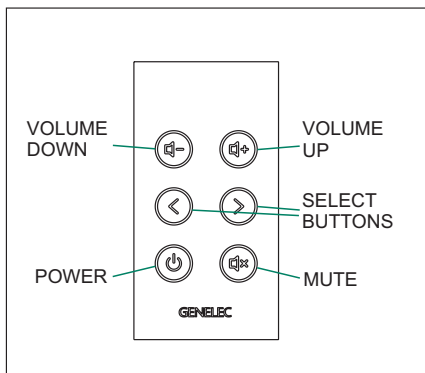


Figure 4. F Two remote control

signal so you can use main speakers with either RCA or XLR input connectors. These outputs are high pass filtered at 85 Hz (See chapter Bass Management). Additionally, the LINK RCA output provides a summed signal of both channels. Use this connector as a signal output to the next subwoofer when you want to connect several subwoofers together. See chapter “Using Multiple Subwoofers” for more information.

System Volume Control Connector

This connector allows connecting the Genelec 9310A Wired Volume Control which is available as an accessory. When connected, the 9310A controls the volume of the whole system, including the main speakers.

IR IN Connector

If the F Two is used with an infrared type remote control (see chapter Use with IR Remote Controls) and the desired location of the subwoofer does not allow an unobstructed line of sight to the receiver located next to the LED in one of subwoofer’s feet, the IR extension cable provided with the subwoofer can be connected here. The receiver end of the cable is then brought to a location where the IR remote control reception works conveniently, for instance close to the IR receiver of a television set when using the subwoofer and speakers with a TV.

Main loudspeaker model	F Two Level Dip switch setting	
	-10 dB switch	+10 dB switch
G One A	OFF	OFF
G One B	OFF	OFF
G One B -10 dB Dip ON	ON	OFF
G Two A	OFF	OFF
G Two B	OFF	OFF
G Two B -10 dB Dip ON	ON	OFF
G Three A	OFF	OFF
G Three A +10 Dip ON	OFF	ON
G Three B	OFF	OFF
G Three B -10 Dip ON	ON	OFF
G Four A	OFF	OFF
G Four A +10 dB Dip ON	OFF	ON
8010A	OFF	ON
8010A -10 dB Dip ON	OFF	OFF
8020A	OFF	ON
8020B	OFF	ON
8020C	OFF	ON
8020D	OFF	ON
8030A	OFF	ON
8030B	OFF	ON
8030C	OFF	ON
8040A	OFF	ON
8040B	OFF	ON
M030	OFF	ON

Table 2. Suggested Level switch settings with different main loudspeakers

Functions And Controls

HT Mode

Turn this switch to “ON” when you connect a sound source with its own volume control to the analog inputs of the F Two. In this mode the volume control of the F Two does not have effect on the analog signals. However, it works with the digital inputs, so you can use them to connect other signal sources.

ISS Sensitivity Low

If the Intelligent Signal Sensing (ISS) function switches the subwoofer on when there is no audio signal present, turning this

switch to “ON” reduces the triggering sensitivity of the function.

ISS

The Intelligent Signal Sensing (ISS) function monitors the audio signal fed to the subwoofer. If there is no signal for approximately 45 minutes, the function switches the subwoofer to Standby mode, reducing the power consumption to less than 0.5 Watts. When the signal resumes, the subwoofer powers up again. There is a slight delay in the automatic powering up. In those environments where the subwoofer is required to be on all of the time, the ISS

function can be disabled by setting the “ISS” switch to the “OFF” position. Then the subwoofer is continuously powered and can be turned off using the power button on the remote control or connector panel.

LED Off

This switch deactivates the status indicator LED on the “foot” of the subwoofer.

Roll-Off

These two switches attenuate the subwoofer’s bass response. At 27 Hz the attenuation levels are -2, -4 and -6 dB (both switches “ON”).

Phase

These two switches provide phase adjustment for the subwoofer in -90 degree increments. See chapter “Phase Alignment”.

Link

This switch selects the analog inputs and disables input channel selection. In addition, it disables the remote control and sets the subwoofer’s level to maximum. Set this switch to “ON”, when using the subwoofer as a “slave” in a multiple subwoofer system. See chapter “Using Multiple Subwoofers”.

Level

These two switches allow adjusting the subwoofer’s level by -10 dB or +10 dB, providing level matching with different main speaker models. See Table 2 for some examples.

Subwoofer Level

This rotary adjustment adjusts the playback level of the subwoofer. The level is increased by turning the adjustment clockwise and reduced by turning it counter-clockwise.

Select

This button allows signal input selection between the two digital inputs and the analog input and initiation of the matching procedure for IR remote controls (see Matching IR Remote Controls).

Power

This button switches the subwoofer between Standby and Power mode. Note that this button does not completely disconnect the subwoofer from the mains power. If this is necessary, the subwoofer’s mains cable must be disconnected. This button can also be used for restoring the

factory settings by keeping it depressed for 10 - 15 seconds. This returns the volume setting on the remote control to factory level and deletes possible remote control pairing and IR remote control matching. Also the source selection returns to automatic, which is the factory setting.

Positioning In The Room

The placement of the subwoofer in the room affects the overall frequency response and sound level of the system dramatically, as at low frequencies the effects of the room are strong. Even a slight change in the location of the subwoofer can cause a marked difference in the frequency balance and often patient and methodical experimentation and testing is needed to find the optimum placement.

The placement will also affect the bass roll-off rate and the phase difference between the main loudspeakers and the subwoofer. These effects can be compensated using the controls in the subwoofer but we recommend that at first you leave the switches untouched and concentrate on finding the position where the subwoofer gives the smoothest response, and only then use the controls to fine-tune the balance and phase alignment between the subwoofer and the main loudspeakers.

Start by placing the subwoofer close to the center of the front wall. We recommend a distance of less than 60 cm / 24” to the wall. This position gives increased acoustic loading and sound pressure level due to the proximity of the front wall and floor. Ideally the subwoofer and main loudspeakers should be positioned symmetrically and at an equal distance from the listening position.

If the frequency balance is not quite right, try moving the subwoofer to the left or right along the wall so that different room modes are excited at different levels. Positioning the subwoofer close to a corner will boost the bass level at lower frequencies and may cause asymmetrical spatial imaging.

ISS™ Autostart

The automatic power saving function ISS (Intelligent Signal Sensing) can be activated by setting the “ISS” switch on the connector panel to “ON.” Automatic powering down to standby mode happens after a certain time when playback has ended. The power consumption in standby mode is typically less than 0.5 watts. Playback will automatically resume once an input signal is detected from any source.

Alternatively, the subwoofer can be activated by pushing any button on the remote control.

There is a slight delay in the automatic powering up. If this is undesirable, the ISS™ function can be disabled by setting the “ISS” switch on the connector panel to “OFF.” In this mode, the subwoofer is powered on and off using the remote control or the power button on the connector panel.

The “ISS SENSITIVITY LOW” switch lowers the triggering sensitivity of the ISS function. This can be necessary if the subwoofer “wakes up” even if there is no audio signal.

Setting The Playback Level

The “LEVEL +10 dB and LEVEL -10 dB” switches and the rotary “SUBWOOFER LEVEL” level adjustment can be used for matching the subwoofer’s playback level with the main loudspeakers (See Table 2). Fine tuning can be done with the rotary adjustment knob.

Setting The Bass Roll-Off Switches

The acoustic response of the subwoofer may have to be matched to the characteristics of the room and the positioning in which it will be used (see Table 1). To adjust the subwoofer to match these characteristics use the “BASS ROLL-OFF” control switches located on the connector panel. When all Roll-Off switches are ‘OFF’, a flat anechoic response is obtained.

Setting The Phase Control

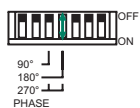
The effect of incorrect phase alignment between the main loudspeakers and the subwoofer is a drop in the frequency response of the whole system at the main loudspeaker / subwoofer crossover frequency. The phase difference between the main loudspeakers and subwoofer at the listening position is dependent upon the distance from the listener to the subwoofer in relation to the main loudspeakers. To avoid phase differences between the left and right main loudspeakers and the subwoofer, the subwoofer should be placed close to the center of the front loudspeaker array.

Two phase matching switches allow compensation for incorrect phase alignment. Four settings are provided between 0° and -270°.

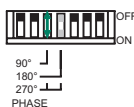
Coarse Phase Correction Method

Connect an audio frequency signal generator to a signal input on the subwoofer which has a main loudspeaker connected to the corresponding "OUT" connector. If the loudspeakers are placed at different distances from the listening position, choose the loudspeaker that is nearer.

Set the generator to 85 Hz. If a signal generator is not available, it is possible to use an audio test recording which has a test frequency in the range 70 Hz to 100 Hz. Suitable test signals can be downloaded at www.genelec.com and found in some smart phones.



Toggle the -180° phase switch 'ON' and 'OFF' and set it to the position which gives the lowest sound level at the listening position.



Next toggle the -90° phase switch 'ON' and 'OFF', and again set it to the position which gives the lowest sound level.



Finally, set the -180° phase switch to the opposite setting.

Matching IR Remote Controls

The F Two subwoofer can be used with most IR remote controls, providing convenient use with, for instance, the remote control of a TV set when connected to it via a fixed level digital signal input. Turn the subwoofer upside down so you can easily reach the "Select" button on the subwoofer's connector and the status indicator LED on the subwoofer's foot is visible. The IR receiver is located in the LED. Note that the "Select" buttons on the RF remote control provided with the subwoofer do not actuate the matching.

The matching procedure is as follows:

- Keep the "Select" button on the subwoofer depressed until the status indicator LED starts blinking red.
- Choose the button on the remote

control that you want to actuate "volume up" function. Keep it depressed until the LED stops blinking. With some remote controls pressing the button multiple times works better.

- Now the LED blinks green, indicating that the button for "volume down" can be selected. Follow the procedure described above.
- Next the LED blinks blue for selection of the button for "Select" button.
- Yellow LED indicates the selection of "Mute" button.
- Magenta LED indicates the selection of "Power" button.

A short press on the "Select" button allows you to skip a step in the procedure, if you do not want to "teach" all the commands listed above. If you want to interrupt the procedure, press "Select" for approximately two seconds. This saves the settings made so far. If you don't want to save the settings, press the Power button for two seconds. This will also delete the matching settings done by that point. If you want to change the matched buttons, just redo the matching process.

Matching The RF Remote Control To The Subwoofer

The remote controls delivered with F Two subwoofers will function with any other F Two subwoofer as well. If this is not desirable, for instance when there are several F Two subwoofers in the same premises, and the user wishes to avoid the situation that more than one subwoofer reacts to the commands given by each remote control, the remote controls can be matched to operate only one subwoofer.

1. Press and hold down the "Power" and "Select" buttons on the subwoofer until the LED starts blinking white.
2. While the LED is blinking, first press and hold down the volume "+" button on the remote control and then the volume "-" button. Keep both buttons pressed for a few seconds until the status indicator LED on the subwoofer stops blinking. This indicates that matching is completed and the matching operation ends automatically.

Now the subwoofer should only respond to commands given by the matched remote control, and respectively, the matched remote control should not work with other F Two units. For cancelling the matching

operation while the LED is blinking, press and hold down the "Power" button on the subwoofer for two seconds. If you wish to undo a matching completely, press and hold down the "Power" button on the subwoofer for ten seconds.

NOTE: In some cases the local WiFi network can cause problems with the RF remote control, if they operate on the same wavelength. We recommend the use of an IR remote control in these cases.

Using Multiple Subwoofers

The Genelec F Two subwoofer is equipped with an LFE/LINK output connector to provide an easy way of coupling two or more subwoofers together in high SPL applications, for instance when using the subwoofers with Genelec G Four active loudspeakers. Connected as described below, the "master" subwoofer controls the volume of all subwoofers linked to it through this connector.

Connect an RCA cable from the LINK connector of the "master" subwoofer to which the main loudspeakers are connected, to the LFE / LINK connector of the other, "slave" subwoofer and turn the LINK dip switch on the "slave" subwoofer to "ON".

In the LINK mode, the subwoofer volume is automatically set to maximum and the "slave" subwoofer only reacts to the power on/off commands given with a remote control. It follows the volume adjustment and source channel selection done in the "master" subwoofer.

When two subwoofers connected in this way are positioned close to one another, bass level increases by 6 dB. Three subwoofers give an SPL increase of 9.5 dB and four subwoofers 12 dB compared to a single subwoofer.

The rotary "SUBWOOFER LEVEL" adjustment knob should be set in the same position as that of the "master" subwoofer unless the subwoofers are placed in very different positions acoustically, for example one in a corner and one far from corners. In such case, it is advisable to measure the loudness of each subwoofer separately and adjust them individually for correct balance.

Phase and Bass Roll-Off adjustments should be done individually for each subwoofer in the chain, especially if they are not placed close together. To check the phase alignment for the "master" subwoofer switch off the "slave" subwoofer and follow the instructions given in the previous sections.

To adjust the phase alignment of the

“slave” subwoofer, you need to switch off the “master” subwoofer, connect a signal cable from one of the “slave” subwoofer’s output connectors to the corresponding loudspeaker and switch the LINK switch to “OFF”. This effectively changes the “slave” to “master” mode and the phase adjustment can be carried out. Return the connections and LINK setting on the “slave” subwoofer back to the “ON” setting after completing the adjustment.

Safety Considerations

The Genelec F Two complies with international safety standards. However, to ensure safe operation and maintain the equipment in safe operating condition the following warnings and cautions must be observed.

- Do not use this product with an unearthed mains cable or a mains connection without the protective earth contact as this may lead to personal injury.
- Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type.
- The battery shall not be exposed to excessive heat such as sunshine, fire or the like.
- Servicing and adjustment must only be performed by qualified service personnel.
- Opening the subwoofer is strictly prohibited except by qualified service personnel.
- Do not expose the subwoofer to water or moisture. Do not place any objects filled with liquid, such as vases on the subwoofer or near it.

Note that the amplifier is not completely disconnected from the AC mains service unless the mains cable is removed from the amplifier or the mains outlet.

Warning!

This equipment is capable of delivering sound pressure levels in excess of 85 dB, which may cause permanent hearing damage.

Compliance To FCC Rules

Remote control

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. This product emits radio frequency energy, but the radiated output power of this device is below FCC radio frequency exposure limits. This equipment complies with FCC RF radiation exposure limits for an uncontrolled environment. Nevertheless, the device should be used in such a manner that the potential for human contact with the antenna during normal operation is minimized.

Changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate the equipment.

Subwoofer

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

This device may not cause harmful interference, and this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

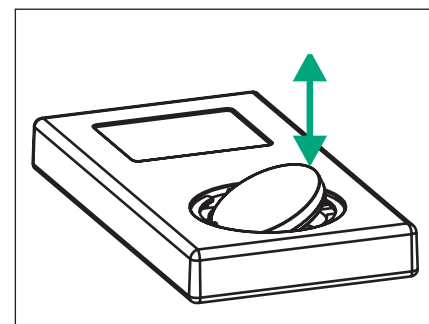


Figure 5. Changing the remote control battery

Modifications not expressly approved by the manufacturer could void the user’s authority to operate the equipment under FCC rules.

Changing The Remote Control Battery

The remote control battery can be changed by turning the battery cover on the back of the remote control anticlockwise. Use a small screwdriver under the right side of the battery (see figure 5) to wedge the battery out. Replace the battery with a similar CR2032 type battery. Insert the battery with the left side first as shown in figure 4 and close the battery cover.

Take the used battery to your local battery recycling point. Under no circumstances should the battery be disposed with general dry waste.

Maintenance

There are no user serviceable parts inside the subwoofer. Any maintenance of the unit must only be performed by qualified service personnel.

Guarantee

This product is supplied with two year guarantee against manufacturing faults or defects that might alter the performance of the unit. By registering your product at:

www.community.genelec.com

You can get an additional three year guarantee that covers the spare parts.

SYSTEM SPECIFICATIONS

	F Two
Free field frequency response (-6 dB)	Main 27 Hz...85 Hz LFE 27 Hz...120 Hz
Maximum short term sine wave SPL output averaged from 30 to 85 Hz, measured in half space at 1 meter	103 dB
Self generated noise level in half space at 1 m on axis (A-weighted)	≤ 5 dB SPL
Driver, magnetically shielded	205 mm (8")
Weight	8.5 kg (18.7 lb)
Dimensions	
Height	300 mm (11 ¹³ / ₁₆ ")
Diameter	362 mm (14 ¹ / ₄ ")

AMPLIFIER SECTION

	F Two
Amplifier short term output power (Long term output power is limited by driver unit protection circuitry)	150 W
Amplifier system THD at nominal output	≤ 0.05 %
Mains voltage	100 - 240VAC 50/60 Hz
Power consumption (average)	
Stand by	0.5 W
Idle	11 W
Full output	150 W

CONNECTORS

	F Two
Analog audio inputs 10 kOhm RCA 3.5 mm stereo jack	L, R, LFE 1
Digital audio inputs Optical Toslink Coaxial RCA 75 Ohm	1 1
Audio outputs XLR balanced RCA	L, R L, R, LINK

CROSSOVER SECTION

	F Two
Subsonic filter (18 dB/octave) below	27 Hz
Crossover frequency (subwoofer/main channels)	85 Hz
LFE channel cutoff frequency	120 Hz
Midband rejection >400 Hz	≥50 dB
Analog input level for 90 dB SPL output at 1 m	-10 dBu at level control max
Digital input level for 90 dB SPL output at 1 m	-21 dBFS at level control max
Digital input word length	16...24 bits
Digital input sample rate	32...96 kHz
Sensitivity adjustment range	18 dB
Level dip switches	+10 dB and -10 dB
Bass Roll-Off control operating range in 2 dB steps	From 0 to -6 dB @ 27 Hz
Phase matching control in 90° steps	From 0 to -270° @ 85 Hz

F Two 有源超低音音箱



概述

真力 F Two 是一款紧凑型有源超低音音箱, 可以作为多声道音响系统中的LFE声道搭配5只真力G One或者G Two主动式有源音箱使用, 或者搭配一对更大的G Three使用。两只F Two串接也可以搭配G Four系统使用。F Two 可与主音箱完美衔接, 将整个系统的低频下潜扩展至 27 Hz。整个系统的音量控制非常方便, 可以通过随机附送无线遥控器进行调节。也可以选择有线音量旋钮 (选购) 进行控制。

F Two具有完善的低频管理功能, 能对2个输出声道进行低频管理, 音箱将频率在 85 Hz 以下的内容分配由F Two进行播放; 高于85 Hz 的声音信号经输出接口送给全频音箱(G系列)进行播放。当将F Two做为多通道音响系统中的LFE声道使用时, 我们建议用影院处理器或者AV前级进行低频管理, 而该超低音音箱仅连接LFE声道。

安装

在连接音频信号前, 请确保所有设备的电源开关都处于关闭状态。

F Two 配有专属的独立功放, 不需要单独配置外部功放。注意! 切勿将 F Two 连在后级功放或合并式功放的音响输出接口上 (通常为黑一红的端子接头)。

请根据下列步骤, 即可成功设置超低音音箱:

1. 检查音箱配套的附件, 包含一个无线遥控器, 一根电源线, 一根红外延长线和一本快速安装指南。
2. 检查音箱配套的附件, 包含一个无线遥控器, 一根电源线, 一根红外延长线和一本快速安装指南。
3. 正确摆放超低音音箱。

4. 从音源连接音频信号线到音箱。您最多可以连接两个数字音源和两个模拟音源。

5. 从超低音音箱的输出接口连接全频音箱。您可以使用平衡卡侬接口或者非平衡莲花接口。

6. 根据表2, 在超低音音箱和主音箱上设置“音量+10”和“-10dB”开关。

7. 按照本手册和《快速安装指南》中的说明调节超低音音箱的相位。

8. 使用测试音频素材和熟悉的音乐片段来判断声音的平衡。可使用“SUBWOOFER LEVEL (超低音音量)”控制旋钮和“BASS ROLL-OFF (低频滚降)”拨档开关微调声音的平衡。如果效果不理想, 请尝试挪动超低音音箱的位置。

使用环境

F Two超低音音箱仅限室内使用。允许的环境温度为15-35摄氏度 (50-95华氏度), 相对湿度为20%-80%。使用环境中禁止出现冷凝。如果此产品从温度较低的储存或运输环境转移至温暖的环境中时, 必须先放置在包装中, 让箱体温度恢复到室温后方可连接电源。

连接

F Two 包含模拟输入接口和数字输入接口, 最多可同时连接四个音源 (两个模拟音源, 两个数字音源)。可以通过接口板上的“选择”按键或者无线遥控器上的“<”和“>”按键切换不同的音源。超低音音箱上的LED灯会提示目前选择的音源。

模拟输入接口

F Two具有两组立体声输入接口 (3.5毫米耳机插口和左右声道的莲花接口) 和一个LFE声道/串接的莲花 (RCA) 输入接口。两组立体声输入并行, 所以可以同时连接两个音源, 但

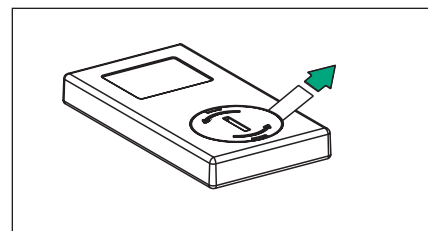


图1. 将无线遥控器的电池绝缘片取出

请不要同时播放。“选择”按键无法切换这两组立体声输入源。LFE声道输入用于连接2.1或者5.1声道音频系统中LFE声道的信号, 或者用作多只超低音系统的信号输入 (请参阅使用多只超低音音箱的章节)。LFE声道输入需要经过120Hz的低通滤波器, 因此不适用于连接全频带的信号。

数字输入接口

F Two具有两个数字信号输入接口, 一个同轴接口和一个光纤接口, 可接收PCM格式的立体声数字信号。您可以接入两个数字音源, 并通过“选择”按键进行切换。

模拟输出接口

F Two具有两对模拟立体声输出接口。其中之一对是莲花 (RCA) 接口, 另外一对是平衡卡侬 (XLR) 接口。使用信号线将这些接口连接到全频音箱。这两对接口传输的信号相同, 您可以使用任意一对接口连接全频音箱。接口输出的信号经过85Hz的高通滤波器 (请参阅低音管理章节)。此外, 串接输出莲花接口 (LINK RCA) 输出的是两个声道的混合信号。当需要在一个系统中连接多只超低音音箱时, 该接口可以将信号串接给下一只超低音音箱。更多信息请参阅“使用多只超低音音箱”。

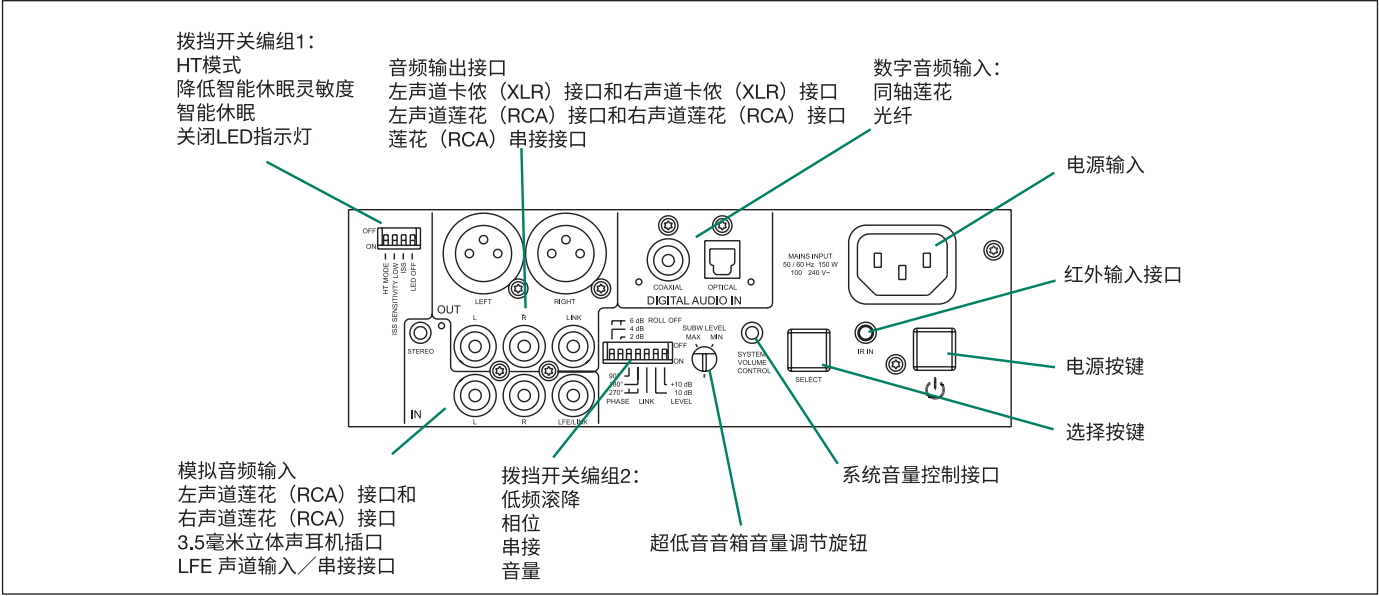


图2. F Two的接口和控制键

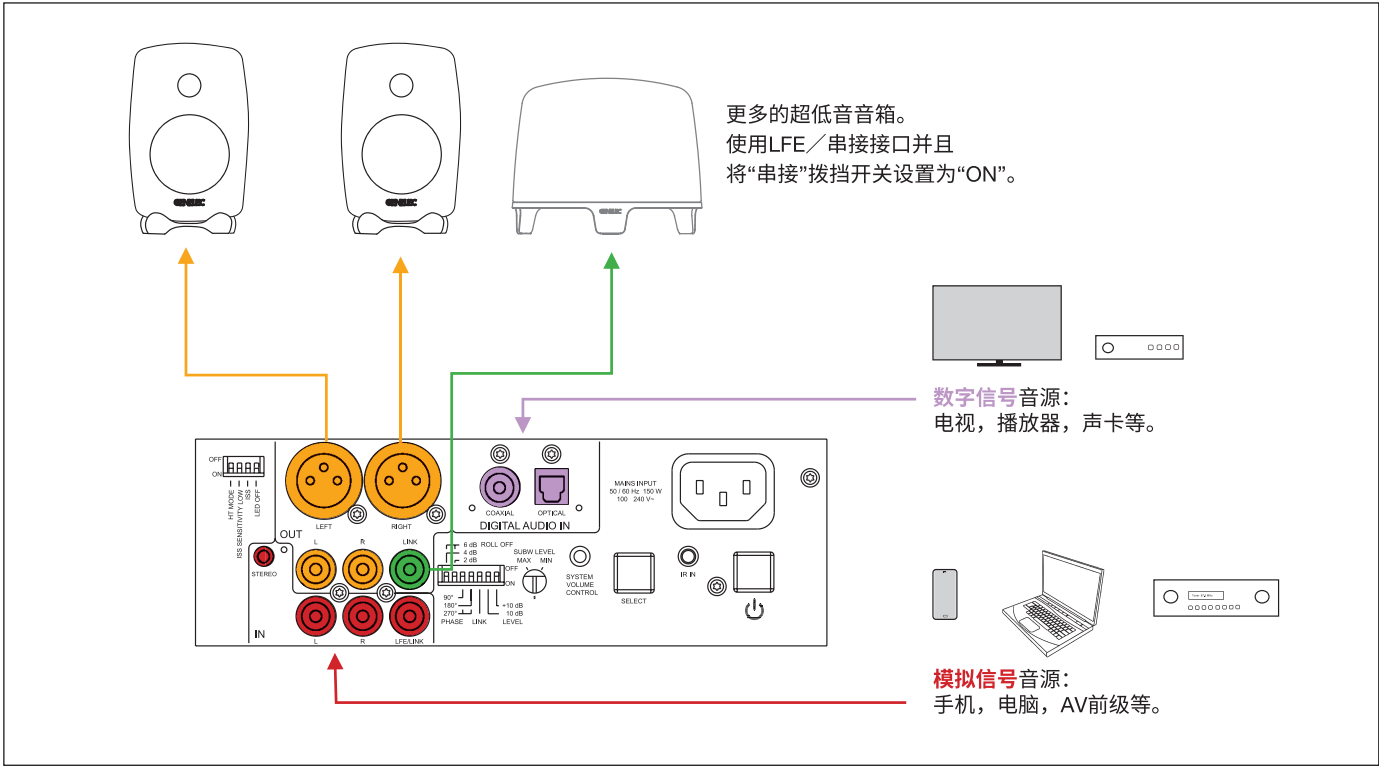


图3. 音频连接

系统音量控制器接口

该接口用于连接Genelec 9310A有线音量控制器(选购)。9310A可以控制整个系统的音量, 包括全频音箱。。

红外输入接口

如果F Two和红外遥控器一起使用(请参阅配合红外遥控器使用部分), 而音箱所在的位置受限, 使得位于音箱脚上的红外接收器与操作者之间有阻挡, 可以用音箱附带的红外延长线

连接至该接口。将线缆末端的接收器放置于接收红外控制信号便利的地方。例如, 当音箱和电视连接使用时, 将该接收器靠近电视的红外接收器。

超低音音箱 摆放位置	低频滚降开关
靠墙放置	-2 dB
放置于角落	-4 dB

表1. 在典型情况下建议的低频滚降开关设置

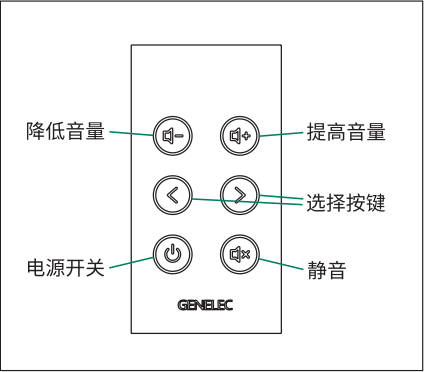


图4. F Two 遥控器

功能和控制

HT模式

当您带有音量控制功能的音源连接到F Two的模拟输入时, 请将此开关拨到“ON”。在此模式下, F Two的音量控制对模拟输入信号无效, 不过它仍然对数字输入起作用, 所以您依然可以控制数字音源的音量。

降低智能休眠灵敏度

如果没有输入信号, 待机模式中的超低音音箱仍被智能休眠功能激活。将此开关拨至“ON”可以降低智能休眠功能的触发灵敏度。

智能休眠

智能休眠功能会监控超低音音箱的输入信号。如果大约45分钟没有检测到输入信号, 该功能将会把音箱切换到待机模式, 从而将功耗降低到0.5瓦以下。当输入信号恢复时, 音箱将被自动唤醒。自动唤醒的过程会稍有延时。某些使用场景要求超低音音箱一直处于工作状态, 则可以通过将智能休眠 (ISS) 开关拨到“OFF”, 禁用智能休眠 (ISS) 功能。音箱将会保持在工作模式下, 可使用遥控器或者接口面板上的电源按键将其关闭。

LED关闭

此开关将禁用超低音音箱“脚”上的状态指示灯。

低频滚降

这两个开关可衰减超低音音箱27Hz以下的低

主音箱型号	F Two音量拨挡开关设置	
	-10 dB 开关	+10 dB 开关
G One A	OFF	OFF
G One B	OFF	OFF
G One B -10 dB Dip ON	ON	OFF
G Two A	OFF	OFF
G Two B	OFF	OFF
G Two B -10 dB Dip ON	ON	OFF
G Three A	OFF	OFF
G Three A +10 Dip ON	OFF	ON
G Three B	OFF	OFF
G Three B -10 Dip ON	ON	OFF
G Four A	OFF	OFF
G Four A +10 dB Dip ON	OFF	ON
8010A	OFF	ON
8010A -10 dB Dip ON	OFF	OFF
8020A	OFF	ON
8020B	OFF	ON
8020C	OFF	ON
8020D	OFF	ON
8030A	OFF	ON
8030B	OFF	ON
8030C	OFF	ON
8040A	OFF	ON
8040B	OFF	ON
M030	OFF	ON

表2. 针对不同主音箱, 建议的音量开关设置

音部分, 可以获得-2dB, -4dB以及-6dB (两个开关均设为ON) 的衰减量。

相位

这两个开关以90度的增量为超低音音箱提供相位调节。

串接

此开关会将输入音源选择为模拟输入, 并禁用输入通道选择。此外, 它会禁用遥控器, 并将超低音音箱的音量设置为最大。当超低音音箱在多只超低音系统中作为“从机”使用时, 将此开关设为“ON”, 请参阅“使用多只超低音音箱”章节。

音量

这两个开关允许将超低音音箱的音量调节衰减10dB或者增加10dB, 从而匹配不同型号的全频音箱。请参阅表2的示例。

超低音音量

此旋钮可调节超低音音箱的回放音量。顺时针旋转为增大音量, 逆时针旋转为降低音量。

选择

此按键用于在两个数字输入和模拟输入之间进行切换, 还可用于配对红外遥控器 (请参阅配对红外遥控器)。

电源

此按键可使超低音音箱在待机和在工作模式之间切换。请注意, 此按键不会完全断开音箱电

源。如需断电，必须断开音箱的电源线。按住此按键10-15秒钟，可使音箱恢复出厂设置。该操作会将遥控器上的音量恢复为出厂设置，并删除可能储存在音箱内的遥控器配对记忆和红外遥控器配对记忆。信号源的选择也会返回到出厂状态下的自动选择。

摆放位置

由于低音受房间声学的影响较大，因此，超低音音箱在房间中的摆放位置会影响整个系统的频率响应以及音量。有时，稍稍改变超低音音箱的摆位，即可产生显著的频率响应变化，耐心，以及科学的实验和测试，能帮助您找到最佳的摆放位置。

超低音音箱的摆放位置也会影响低频下限以及全频音箱与超低音音箱之间相位差。使用音箱上的音色控制开关可以对上述问题进行补偿，但我们建议您先将开关置于默认状态，专注于找到超低音音箱频率响应最平直的位置放置，然后再用音色控制开关调整音色、平衡以及全频音箱与超低音音箱之间的相位。

首先，将超低音音箱靠近前墙中点放置，我们建议超低音音箱与前墙的距离不超过 60 厘米/ 24英寸。由于这个位置靠近前墙和地面，这样放置可以提高声学负载以及声压级。理想状态下，超低音音箱和全频音箱都应该在房间中对称放置，并且到听音者的距离相等。

如果频率均衡不合适，可以尝试将超低音音箱放在沿墙面偏左或偏右的位置，激发不同的房间模式。如果将超低音音箱靠近墙角放置，可能会导致低音过重现象，造成声像不对称。

智能休眠自动启动

通过将接口面板上的智能休眠 (ISS) 开关拨到“ON”，可以激活智能休眠 (ISS) 功能。当输入信号停止播放一定时间后，音箱会自动进入待机模式。待机模式下的功耗通常小于0.5瓦。一旦从任意输入源检测到输入信号，音箱将自动恢复工作。

此外，还可以通过按遥控器上的任何按键来启动音箱。

自动唤醒的过程会有短暂延迟。如果不需要此功能，可以通过将智能休眠 (ISS) 开关拨到“OFF”，禁用该功能。在此模式下，可使用遥控器或者接口面板上的电源按键来开启和关闭音箱。

“降低智能休眠灵敏度 (ISS SENSITIVITY LOW)” 拨档开关可以降低智能休眠功能的触发灵敏度。此功能在以下情况可能需要被打开：即使没有输入信号，待机模式中的超低音音箱仍被自动激活。

设置回放音量

音量+10 dB (LEVEL +10 dB)，音量-10 dB (LEVEL -10 dB) 开关和超低音音量旋钮可用于调节超低音音箱和主音箱回放音量的平衡 (见表2)。

使用“超低音音量 (SUBWOOFER LEVEL)”对超低音音箱的音量进行微调，使之匹配全频音箱的回放音量。

设置低频滚降开关 (Bass Roll-Off)

超低音音箱的声学响应与房间的声学特性和摆位有关 (参考表1)。为了使超低音音箱与这些因素相适应，可以使用接口面板上的“低频滚降”开关。所有的滚降开关默认处于关闭状态，此时可在无反射声的消声室中获得平直的响应。

设置相位控制

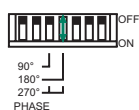
全频音箱与超低音音箱之间因距离不同而导致的相位差，如果不经过校准，会导致回放内容在全频音箱与超低音音箱的分频点处产生抵消。这种现象，源于听音者与全频音箱和超低音音箱的距离差。为了避免左右声道与超低音音箱的相位差，超低音音箱应该放置于靠近前方音箱连线中点的位置。

两个相位匹配开关可以补偿不正确的相位耦合，提供 0° 到 -270° 四档选择。

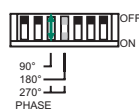
相位校准粗调

在超低音音箱的输入接口接入一个音频信号发生器，在超低音音箱对应输出接口上连接一只全频音箱。如果两只全频音箱到听音位的距离不同，选择距离听音位较近的那只。

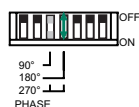
将信号发生器的频率调到 85Hz，使超低音音箱和全频音箱同时播放这一信号。如果没有音频信号发生器，也可以使用一段含有70Hz 到100Hz 的音频测试文件代替。您可以在www.genelec.com 下载到合适的音频测试文件，在某些智能手机中也能找到类似的测试信号。



打开和关闭 -180° 相位开关，选择听音位处音量更低的设置。



继续打开和关闭 -90° 相位开关，也选择听音位处音量更低的设置。



最后，将 -180°相位开关调到相反位置。

红外遥控器配对

F Two超低音音箱可与大多数红外遥控器配合使用，例如，将电视机的数字音频输出 (通常是光纤，且音量不可调) 接入F Two，而后通过电视机遥控器控制音响系统的音量。将超低音音箱倒置，这样您就可以轻松地操作超低音音箱接口面板上的“选择 (Select)”按键，并且可以看到超低音音箱“脚”上的LED指示灯状态。红外接收器位于LED中。请注意，音箱随机附送的射频遥控器上的“选择”按键无法提供红外配对功能。

配对步骤如下：

- 按住超低音音箱上的“选择 (Select)”按键，直到LED状态指示灯开始闪烁红色。
- 长按遥控器上“增大音量”功能的按键，直到LED停止闪烁。对于某些遥控器，多次点击按键更容易配对。
- 此时LED闪烁绿色，表示可以选择“减小音量”的按键。请重复执行上述步骤。
- 接下来，LED闪烁蓝色表明选择遥控器上的“音源选择”按键。
- 黄色LED表明选择“静音”按键。
- 紫红色LED表明选择“电源”按键。

如果您不想让遥控器“学习”上面列出的所有指令，短按音箱“选择”按键可以跳过一个步骤。如果要中断整个过程，请按住“选择”按键大约2秒钟。这将保存目前为止已做的设置。如果您不想保存设置，请按住电源键2秒钟。这将删除到目前为止已做的所有配对设置。如果要更改已配对的按键，只需重新配对即可。

射频遥控器配对

随机附送的遥控器可以控制任意一只F Two超低音音箱。如果不想随意配对，比如用户需要在同一个环境下使用多只F Two超低音音箱，且希望每个遥控器只控制一只音箱，遥控器可以与特定的F Two配对。

1. 长按超低音音箱上的“电源”和“选择”按键，直到LED开始闪烁白色。
2. 当LED闪烁时，先按住遥控器上的音量“+”按键，然后按住音量“-”按键。同时按住两个按键几秒钟，直到超低音音箱上的LED状态指示灯停止闪烁。这表明配对已完成，配对操作结束。

此时，音箱仅响应已配对的遥控器发出的指令，配对的遥控器不能与其它F Two音箱一起使用。当在LED闪烁时取消配对操作，请按住超低音音箱上的“电源”按键2秒钟。如果您希望完全取消配对，请按住超低音音箱上的“电源”按键10秒钟。

请注意：当本地WIFI网络和射频遥控器在相同的频率下工作时，有可能导致射频遥控器工

作异常。在这种情况下，我们建议使用红外遥控器。

使用多只超低音音箱

真力 F Two 超低音音箱配有1个LFE／串接输出 (LFE/LINK) 接口，用于连接两只或更多的超低音音箱，满足大音量播放的需求。例如，使用 G F our 组成家庭影院系统时，就需要配合多只超低音音箱使用。按照以下描述的方式连接，“主”超低音音箱控制其他所有与它相连的“从”超低音音箱的音量。

连接“主”超低音音箱的串接输出接口 (LINK OUT) 至其他超低音音箱的串接输入接口 (LFE/LINK)，并依次串联所有 F Two，最后，把所有“从”超低音音箱的串接 (LINK) 拨挡开关拨到“ON”档。

在串接 (LINK) 模式下，“从”超低音音箱的音量自动设置到最大，且只回应遥控器的开关机命令。而音量调节和音源的选择会跟随“主”超低音音箱。

当两只超低音音箱按照上述方式连接，并且摆放位置靠的特别近时，低频声压级会增加6dB。同样，三只超低音音箱会增加 9.5dB，四只超低音音箱会增加 12 dB。

“主”超低音音箱和“从”超低音音箱的“超低音音量 (SUBWOOFER LEVEL)”旋钮应该设置相同，除非它们所处的环境非常不同，例如一只放在角落，而另一只远离角落。在这种情况下，建议分别测量每只超低音音箱的响度并分别进行调节，以达到平衡。

在串接链路中的超低音音箱应分别调节相位和低频滚降，尤其是当它们没有靠近摆放时。如果要校准“主”超低音音箱的相位，请关闭“从”超低音音箱，然后根据先前章节介绍过的方法进行相位校准。

调节“从”超低音音箱的相位时，先将“主”超低音音箱关闭，将“从”超低音音箱的输出接口和对应的全频音箱用音频线缆连接，再将串接 (LINK) 开关关闭。这个操作能够暂时改变“主”“从”模式，便于调整相位。调整完毕后，再恢复调整前的系统连接，并打开“从”超低音音箱上串接 (LINK) 开关。

安全注意事项

虽然 F Two 是按照国际安全标准设计的，用户仍需遵循以下警告和注意事项，以确保操作安全，并使音箱保持安全工作状态：

- 请勿将本产品连接未接地的电源线或未连接保护性地线的电源，这可能会导致人身伤害。
- 使用不恰当的电池可能引发爆炸的危险。

请使用原装电池或者同类型的电池。

- 请勿将电池暴露在高温环境下，例如阳光直射，明火等等。
- 维修和调试只能由具有维修资质的专业维修人员完成。
- 禁止在未经专业维修人员指导的情况下打开音箱盖。
- 切勿将音箱暴露于水或湿气中。切勿在音箱顶部或旁边放置花瓶等任何盛有液体的物品。

请注意，除非已从音箱或电源插座上拔下了电源线，否则，音箱并未完全与市电交流电源断开。

警告！

此设备可以产生超过 85dB 的声压级，这可能会导致永久性听力损伤。

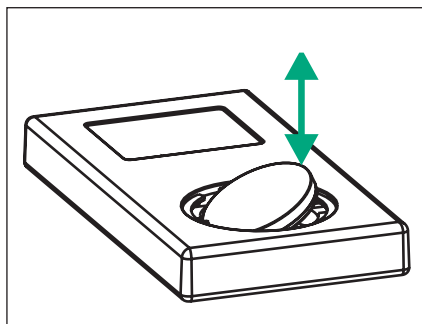


图5. 更换遥控器电池

更换遥控器电池

逆时针旋转遥控器背面的电池盖，将电池盖打开，然后用小螺丝刀从右面将电池撬出来 (图5)。装入CR2032电池 (或与其同等的电池)。注意，先将电池的左部分放入电池盒内，然后再推入右部分，盖上电池盖。用过的电池不可作为一般的垃圾处理，请您送到您所在区域的回收站。

维护

在音箱内部没有任何用户可调整的部分。任何关于音箱的维护或维修都应由真力授权的维修服务人员来完成。

质保

真力 (Genelec) 为材料和工艺上的质量问题提供2年的质保服务。通过微信注册您的音箱，可将质保服务延长至5年。

系统规格

	F Two
自由场中的频率响应(-6 dB)	主声道 27Hz ~ 85Hz LFE声道 27Hz ~ 120Hz
半开放空间, 轴上最大短时正弦波声压级输出, 30 Hz ~ 85 kHz均值@1米	103 dB
自由场内自身噪声电平 @ 1米 轴上 (A计权)	≤ 5 dB SPL
驱动单元 (磁屏蔽)	205 毫米 (8英寸)
重量	8.5千克 (18.7磅)
尺寸	
高	300 毫米 (11 ¹³ / ₁₆ 英寸)
直径	362 毫米 (14 ¹ / ₄ 英寸)

功放部分

	F Two
短期内功放的输出功率 (功放的长期输出功率受驱动单元保护电路的限制)	150 瓦
在标称输出功率下功放系统失真参数	≤ 0.05 %
电源电压	100 - 240VAC 50/60 Hz
平均耗电量	
待机	0.5 瓦
闲置	11 瓦
满输出	150 瓦

接口部分

	F Two
模拟音频输入10k欧姆 莲花接口 3.5毫米立体声耳机插口	左声道, 右声道, LFE声道 1
数字音频输入 光纤接口 同轴莲花接口	1 1
音频输出 平衡卡侬接口 莲花接口	左声道, 右声道 左声道, 右声道, 串接

分频部分

	F Two
超低频滤波 (18 dB/倍频程)	27 Hz
分频点 (超低与主声道)	85 Hz
LFE 通道截止频率	120 Hz
中频抑制 >400 Hz	≥50 dB
模拟输入电平 (1m处 获得90dB SPL输出)	-10 dBu (在电平调整到最大)
数字输入电平 (1m处 获得90dB SPL输出)	-21dBFS (音量调整到最大)
数字信号输入量化精度	16...24 bits
数字信号输入采样范围	32...96 kHz
灵敏度调整范围	18 dB
音量拨挡开关	+10 dB 和 -10 dB
低频滚降开关调节范围 (2 dB 步进)	从0 ~ -6 dB @ 35 Hz
相位调节控制 (90° 步进)	从0 ~ -270° @ 85 Hz