TOPPING

TP234

D90III Discrete

使用手册

User Manual

説明書

Model: TP21B

V1.1

目录

包装内物品清单

1. 包装内物品清单

D90 III Discrete主机	x 1
遥控器	x 1
USB数据线	x 1
AC电源线	x 1
蓝牙天线	x 1
产品信息卡	x 1

说明：TOPPING产品的驱动可以到
https://www.toppingaudio.com/zh/downloads上下载。

2. 产品基本属性

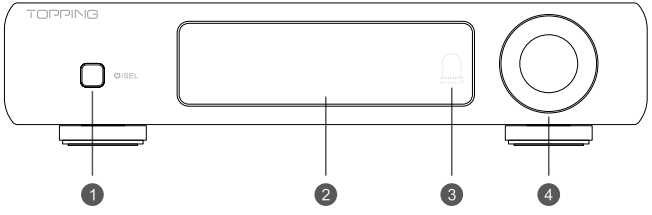
尺寸	22.2cm x 16.0cm x 4.5cm
单机重量	1.17Kg
电源	100-240VAC 50Hz/60Hz
输入接口	USB/BT/OPT/COAX/AES/IIS
Line Out 输出接口	XLR/RCA
其他控制接口	12V 触发输入(3.5mm 插座) 12V 触发输出(3.5mm 插座)
蓝牙接收距离	>10 米
显示	白色 OLED
待机功耗	<1W
正常工作功耗	<9.5W

2.1 支持规格

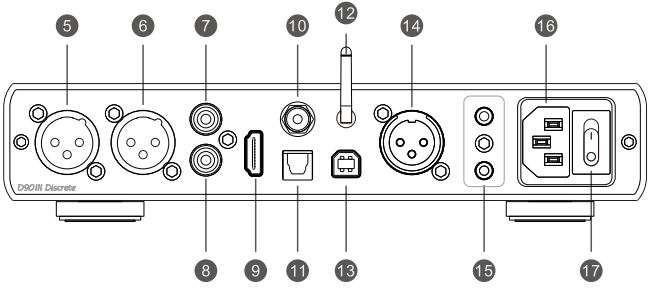
USB IN	PCM 44.1kHz-768kHz/16bit-32bitDSD DSD 64-DSD512 (Native) , DSD64-DSD256 (DoP) PEQ 44.1kHz-192kHz/16bit-24bit
IIS IN	PCM 44.1kHz-768kHz/16bit-32bitDSD DSD 64-DSD512 (Native), DSD64-DSD256 (DoP)
COAX/OPT/AES IN	PCM 44.1kHz-192kHz/16bit-24bit DSD DSD64 (DoP) PEQ 44.1kHz-192kHz/16bit-24bit
BT IN	AAC/SBC/APTX/APTX HD/APTX-Adaptive/LDAC PEQ 44.1kHz-96kHz/16bit-24bit

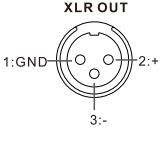
产品基本属性

2.2 前面板



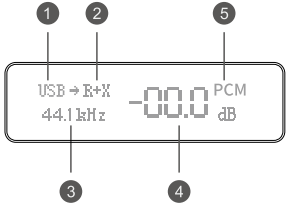
2.3 后面板





1 多功能按键
2 OLED 显示屏
3 遥控接收器
4 音量旋钮
5 XLR 平衡输出右
6 XLR 平衡输出左
7 RCA 单端输出左
8 RCA 单端输出右
9 IIS 输入
10 COAX 输入
11 光纤输入
12 蓝牙输入
13 USB 输入
14 AES 输入
15 12V 触发输入/输出（3.5mm 接口）
当两个或多个配备12V Trigger接口的设备连接，可实现同步开机/待机。
Trigger In 所连接的上游设备可控制 D90 III Discrete 开机/待机，
D90 III Discrete 可控制 Trigger Out 所连接的下游设备开机/待机。
*注意使用设备的 Trigger In 功能时，需要按压遥控 AUTO 按键将自动开关机设置为“AUTO : TRG”。
16 电源输入（AC 100-240V 50Hz/60Hz）
17 电源开关

2.4 显示说明



1 输入通道
2 输出通道
3 当前采样率
4 音量
5 PCM/DSD/MQA 格式指示

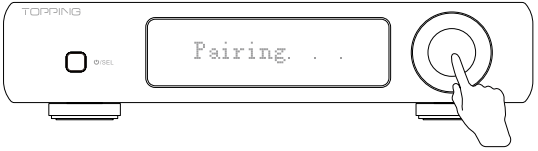
2.5 遥控器说明

通过蓝牙遥控器，您可以实现远距离控制 D90 III Discrete。您可以调整音量、切换输入通道和滤波设置等等。

配对蓝牙遥控器

1.给遥控安装两节 AAA 电池（不附赠）
2.使用附赠的电源线连接到电源接口，开机。
3.同时长按中间键与C2键，遥控红灯闪烁后即可停止按压

4.长按旋钮直到显示 Pairing...



5.等待一会，显示 Paired 表示配对成功

*显示 Unpaired 表示配对失败，请重复上述步骤
注意：步骤2会清除所有蓝牙连接，包括手机的蓝牙连接。

产品基本属性

C1 C2

操作：长按3秒 C1/C2 按键保存当前设置，保存成功显示“C1 SAVED”或“C2 SAVED”，按压 C1/C2 按键即可使用对应设置。

保存的设置：包含音量大小以及设置菜单中的全部设置，比如输入通道、输出通道、亮度等等。

功能说明：该功能适用于不止一个使用场景的用户，比如以下两种使用场景。不同的使用场景下，D90 III Discrete 有不同的设置。

D90 III Discrete 设置	场景1：连接耳放使用	场景2：连接音箱使用
输入通道	USB 输入	OPT 输入
输出通道	RCA 输出	XLR 输出
音量大小	-40dB	-20dB
亮度	高	低

从场景 1 切换到场景 2 使用需要更改不少设置，这时使用 C1 和 C2 按键分别将这两种场景的 D90 III Discrete 设置保存，切换到场景 2 时，只需要按压 C2 按键就能一键调用全部的设置，无需逐个更改。

AUTO

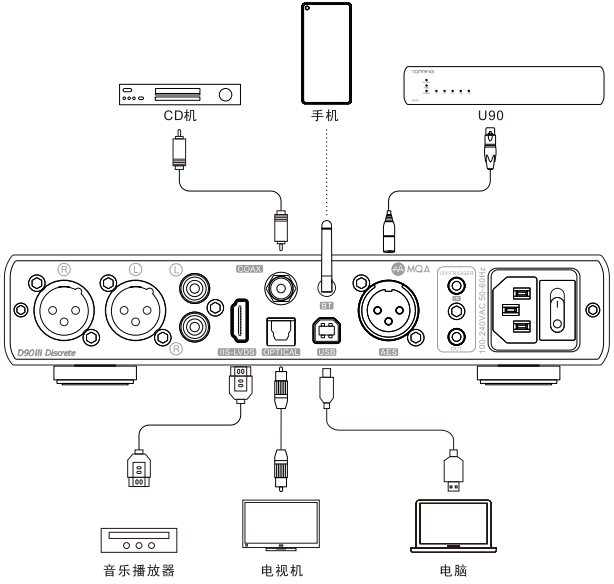
* 于“设置菜单”的“1.自动开关机设置”中有详细说明

于“设置菜单”的“2.屏幕亮度设置”中有详细说明

3. 连接

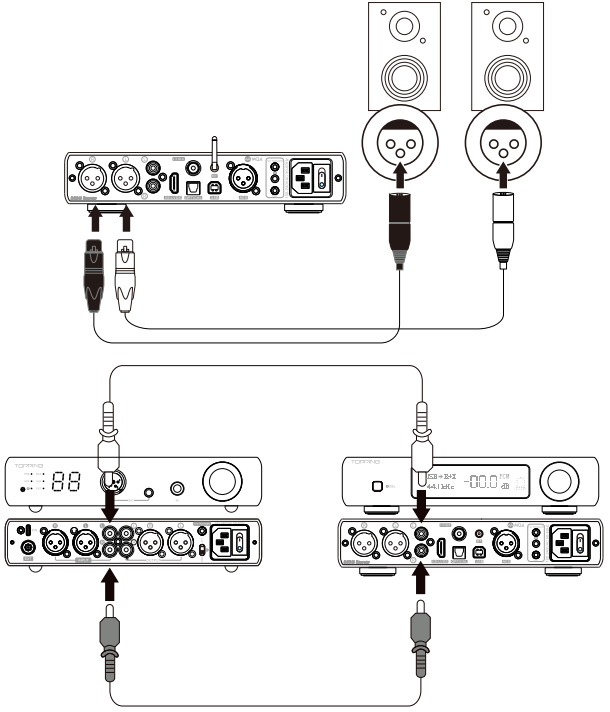
3. 1 连接输入源

共6类输入接口可供选择：IIS、USB、光纤、同轴、蓝牙和AES。



3. 2 连接放大器或有源音箱

使用 RCA 或 XLR 线缆连接至放大器或有源音箱，连接前请先关闭放大器或有源音箱，以免损坏设备。



4. 操作说明

4.1 开关机/待机操作开关机/待机操作

(1)开关机：打开或者关闭后面板的电源开关，即可实现 D90 III Discrete 的开关机。
(2)待机、退出待机设置：
工作时长按前面板的按键进入待机，待机时按压它以退出待机；也可以直接按压遥控器上的待机按键进入或退出待机。

4.2 输入通道切换

按压前面板的或者遥控上的 < 按键或 > 按键即可依次循环切换输入。

4.3 输出通道切换

按压前面板的旋钮和遥控上的 Line Out 按键即可依次循环切换输出，可选择 RCA / XLR / RCA+XLR。

4.4 音量设置

(1)静音状态的进入与退出：按压遥控器上的 按键，可以设置 D90 III Discrete 输出为静音状态，重新按压静音按键或调节音量大小即可退出静音状态。
(2)音量大小调节：使用面板上的旋钮或者遥控器上的 + 和 − 按键可以调节 D90 III Discrete 的音量。注意长按遥控器上的 + 和 − 按键会快速调节音量，要小心操作以保护听力。
特别说明：在 DAC 模式下，音量固定为 0dB，音量大小调节无效。

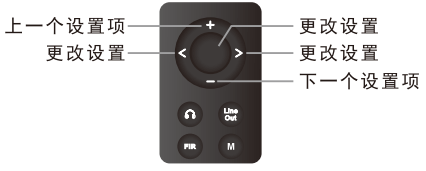
5. 设置菜单

5.1 进入设置菜单

将电源开关切换到“电源关”后，按住前面板的按键的同时切换到“电源开”即可进入 D90 III Discrete 的设置菜单。

5.2 更改设置

(1)使用前面板的旋钮
转动旋钮：切换设置项
按压旋钮：更改设置/确认
(2)使用遥控器



5.3 保存设置

设置好参数后请选择第17项“保存参数并重启”来保存参数。

5. 4 设置项说明

1. 自动开关机设置

SIG：根据输入信号触发开机/关机。在一分钟内如果当前输入没接入或者当前输入信号无效时自动进入待机状态，一旦检测到任一输入存在有效信号接入就可以自动恢复正常工作状态。（默认）

TRG：根据12V信号触发开机&待机。配备 12V 触发输出的设备连接 D90 III Discrete 的触发输入后，可控制 D90 III Discrete 开机/进入待机。当触发输入接口检测到12V信号从无到有时，D90 III Discrete 会自动开机；当检测到 12V 信号从有到无时，D90 III Discrete 自动进入待机状态。

OFF：关闭该功能

2. 屏幕亮度设置

L：亮度低

M：亮度中（默认）

H：亮度高

A：该亮度与亮度中一样。不同的是，在自动模式下，30秒无操作自动息屏，息屏时显示当前输入，息屏时点击任意按键即可唤醒屏幕。

3. Line Out 模式设置

PRE：前级模式，音量可调（默认）

DAC：保持最大音量输出，音量不可调

4. DSD 直通

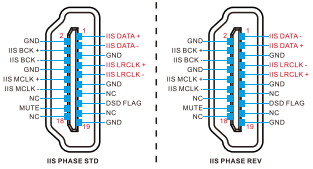
ON：启用 DSD 直通

OFF：禁用 DSD 直通

5. IIS 接口相位设置

STD：标准相位（默认）

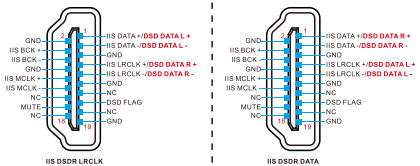
REV：反相



6. IIS 接口 DSD 声道设置

LRCLK：DSDR 使用 LRCLK（默认）

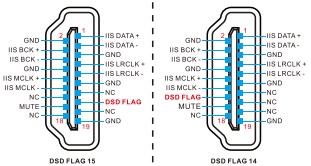
DATA：DSDR 使用 DATA



7. IIS 接口 DSD 标志位设置

Pin15：IIS 接口的 DSD 标志选择 Pin15（默认）

Pin14：IIS 接口的 DSD 标志选择 Pin14



8. IIS MUTE

OFF(Default)、HIGH、LOW

注意：当使用 IIS 接口切换采样率出现噪声时可选择高/低电平有效来消除噪声

设置菜单

9. Line Out 输出设置
RCA+XLR：RCA 和 XLR 同时输出（默认）
RCA：RCA 输出，XLR 无输出
XLR：XLR 输出，RCA 无输出

10. 0dBFS 时的最大输出电平设置
4V（默认）、5V

11. USB 协议版本设置
UAC2.0（默认）、UAC1.0

12. 蓝牙开关
On：启用蓝牙（默认）
OFF：禁用蓝牙
注意：禁用蓝牙不会影响遥控的使用

13. PEQ 开关
OFF：PEQ 关（默认）
ON：PEQ 开

14. PEQ 的频响曲线
NULL：本地没有配置频响曲线。
Unused：

1、2、3、4、5分别对应 TOPPING Tune 的机子配置所调整好的频响曲线。
注意：在 TOPPING Tune 上，可将本地配置的频响曲线保存到 D90 III Discrete 上，D90 III Discrete 可离线使用该配置。连接 TOPPING Tune 时，不可在设备上切换配置。

15. 蓝牙清除设置
清除手机和遥控的蓝牙配对
注意：按压遥控任意按键可自动重新配对遥控，遥控停止闪烁红灯表明配对成功

16. 左右声道平衡设置
Balance C：平衡（默认）
Balance L +0.5dB：可设置范围为 L+0.5~10dB
Balance R +0.5dB：可设置范围为 R+0.5~10dB
注意：按压按键或旋钮可进行调节。

17. -50dB 以下时的音量步进
Vol step 1.0dB：音量步进 1dB（默认）
Vol step 0.5dB：音量步进 0.5dB
注意：音量在 -50dB~-99dB 可选择步进 0.5 或 1dB，-50dB 以上步进固定为 0.5dB。

18. 保存参数设置并重启
Save and exit：保存设置好的参数并重启

19. 恢复出厂设置
Factory reset：恢复出厂设置并重启

5.5 快捷菜单

开机状态下，按压遥控器的中间按键可进入快捷菜单，快捷菜单从设置菜单中提取了其中3个常用设置项，便于用户在使用时可简单快速地设置，其中包含

1. PEQ 开关（设置菜单中的第12项）
2. PEQ 的频响曲线（设置菜单中的第13项）
3. 左右声道平衡设置（设置菜单中的第15项）

更改设置的方法同上，设置完后按压中间按键即可退出快捷菜单。

6. 故障排除

若使用过程中出现问题，请通过以下链接查找相应的解决方法。
https://www.toppingaudio.com/faq

若使用过程中出现问题，请通过以下链接查找相应的解决方法。
查找方式：Window OS 同时按住键盘的Ctrl+F按键（Mac OS 同时按住command+F）进入搜索，输入设备型号，就能跳转到该设备的FQA。

如果依然无法解决问题，请联系我们：service@tpdz.net

7. 注意事项

1. 本机的输出信号不得接地或者短路。
2. 不得将本机搁置在高温、潮湿的环境，更不得淋雨或者受强烈冲击。
3. 不得随意拆开机壳，如需维修应请专业维修人员处理。
4. 本机仅供室内使用。
5. 对因产品的故障而直接或间接引起的任何损失或损坏不予负责。
6. 因产品改进，规格及功能若有变动恕不另行通知。

8. 参数

D90 III DISCRETE 解码参数一览表（LineOut/USB In@96kHz）		
	RCA	XLR
总谐波失真 @A-wt	<0.00007% @1kHz	<0.00006% @1kHz
总谐波失真 @No-wt（45kBw）	<0.0004% @20-20kHz	<0.0002% @20-20kHz
信噪比 @A-wt	127dB @1kHz	131dB @1kHz
动态范围 @A-wt	126dB @1kHz	130dB @1kHz
频率响应	20Hz-20kHz(±0.5dB)	20Hz-20kHz(±0.5dB)
	20Hz-40kHz(±1.8dB)	20Hz-40kHz(±1.8dB)
输出幅值	2.1Vrms @0dBFS(4V Mode)	4.2Vrms @0dBFS(4V Mode)
	2.6Vrms @0dBFS(5V Mode)	5.2Vrms @0dBFS(5V Mode)
底噪 @A-wt	<1.5uVrms	<1.8uVrms
声道串扰	-122dB @1kHz	-143dB @1kHz
声道平衡度	0.3 dB	0.3 dB
输出内阻	50Ω	150Ω

*说明：以上的参数均在输出幅值为 5V 的模式下测试所得。

Catalog

1. Contents list

D90 III Discrete	x 1
Remote control	x 1
USB cable	x 1
AC cable	x 1
Bluetooth antenna	x 1
Product Information Card	x 1

Note: You can download the driver on
https://www.toppingaudio.com/downloads.

2. Attribute

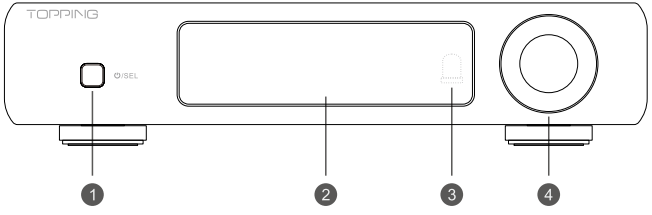
Measured	22.2cm x 16.0cm x 4.5cm
Weight	1.17Kg
Power input	100-240VAC 50Hz/60Hz
Signal input	USB/BT/OPT/COAX/AES/IIS
Line Out output	XLR/RCA
Other connectors	12V Trigger In（3.5mm jack） 12V Trigger Out（3.5mm jack）
Bluetooth receiving distance	>10 M
Display	White OLED
Standby power consumption	<1W
Power consumption	<9.5W

2. 1 Input range

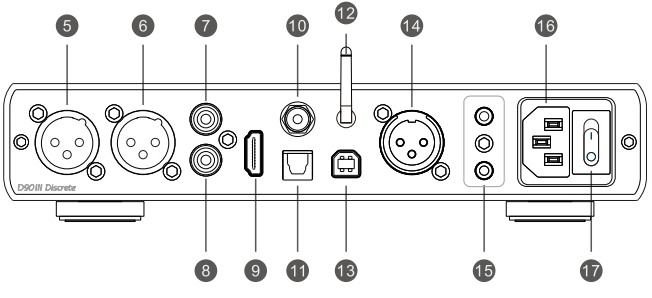
USB IN	PCM 44.1kHz-768kHz/16bit-32bitDSD DSD 64-DSD512 (Native) , DSD64-DSD256 (DoP) PEQ 44.1kHz-192kHz/16bit-24bit
IIS IN	PCM 44.1kHz-768kHz/16bit-32bitDSD DSD 64-DSD512 (Native), DSD64-DSD256 (DoP)
COAX/OPT/AES IN	PCM 44.1kHz-192kHz/16bit-24bit DSD DSD64 (DoP) PEQ 44.1kHz-192kHz/16bit-24bit
BT IN	AAC/SBC/APTX/APTX HD/APTX-Adaptive/LDAC PEQ 44.1kHz-96kHz/16bit-24bit

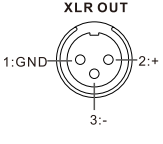
Attribute

2. 2 Front panel



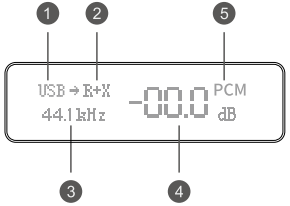
2. 3 Rear panel





1 Multifunction button
2 OLED screen
3 Remote control receiver
4 Volume knob
5 Right channel balanced XLR output
6 Left channel balanced XLR output
7 Left channel single-ended RCA output
8 Right channel single-ended RCA output
9 IIS input
10 Coaxial SPDIF input
11 Optical SPDIF input
12 Bluetooth input
13 USB input
14 AES input
15 12V Trigger IN/OUT (3.5mm jack)
The 12V Trigger IN/OUT allows the D90 III Discrete to be activated by other devices or to activate other devices via a 3.5mm AUX cable. The upstream device connected to Trigger In can control the power on/standby of D90 III Discrete, and the downstream device connected to Trigger Out can be controlled by D90 III Discrete.
*Before using the Trigger IN function, you need to press the AUTO button on remote to set auto power on&standby mode to "AUTO : TRG".
16 Power input (AC 100-240V 50Hz/60Hz)
17 Power switch

2. 4 Display



1 Input
2 Output
3 Current sampling rate
4 Volume
5 PCM/DSD format indication

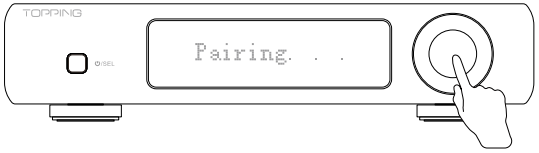
2. 5 Remote control

With the Bluetooth remote control, you can control D90 III Discrete from a distance. you can adjust the volume, switch input channels, filter settings and more.

Pairing Bluetooth remote control

1. Install two AAA batteries (not included) for the remote control.
2. Connect to the power connector with the attached power cord, turn on the unit.
3. Press and hold middle button and C2 button until the red light flashes.

4.Press and hold the knob until the display shows Pairing...

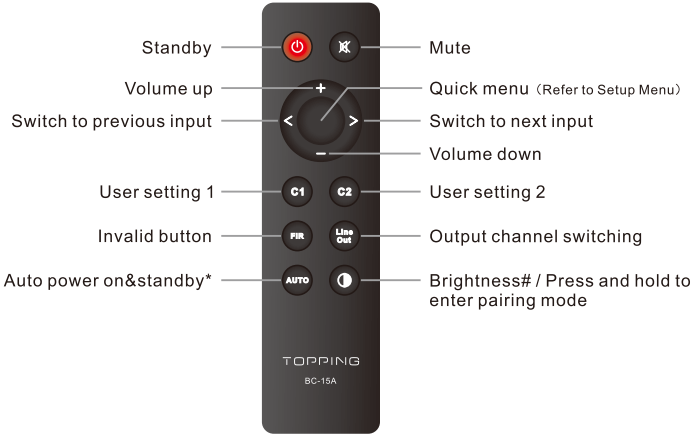


5.Wait for a while, the display shows Paired which means the pairing has succeeded .

*The display shows Unpaired which means the pairing has failed, please repeat the above steps.

Note: Step 2 will clear all Bluetooth connections, including the phone's Bluetooth connection.

Attribute



C1 C2

Operation: Press and hold the C1/C2 button for 3 seconds to save the current settings, and "C1 SAVED" or "C2 SAVED" will be displayed after successfully saving. Short press the C1/C2 button to use the corresponding settings.

What was saved: Volume and all settings in the setup menu, such as input channel, output channel, gain, etc.

When to use: This feature is suitable for users who have more than one usage scenario, such as the two shown below. Using C1&C2 buttons to save and load settings may free you from changing settings one by one when you want to change usage scenario.

D90 III Discrete settings	Usage scenario 1: Connect with amplifier	Usage scenario 2: Connect with speakers
Input channel	USB IN	OPT IN
Output channel	RCA OUT	XLR OUT
Volume	-40dB	-20dB
Brightness	High	Low

AUTO

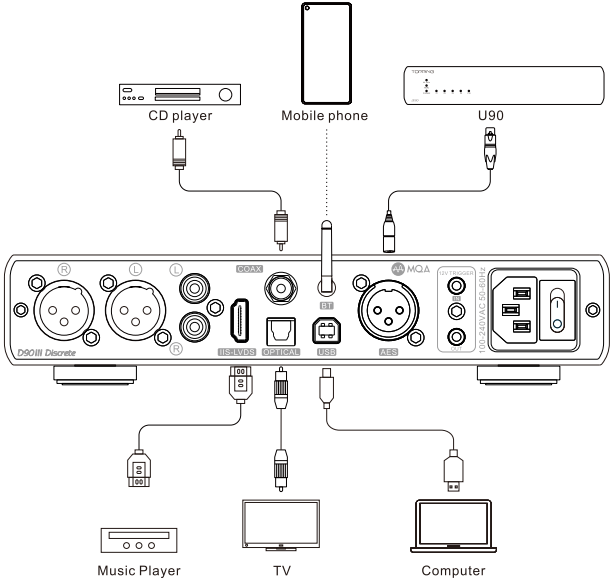
* See "1. Auto power on & off setting" in the "Setup Menu", below.

See "2. Screen brightness setting" in the "Setup Menu", below.

3.Connection

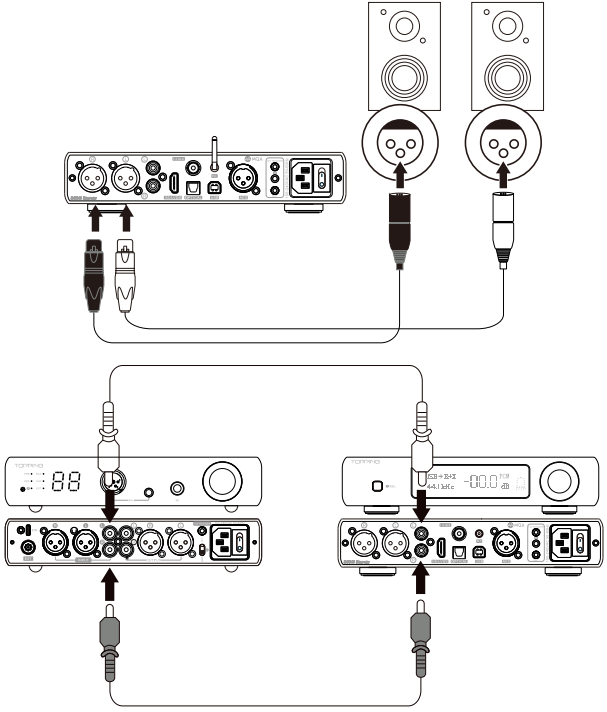
3. 1 Connect to the input source

Support IIS,USB, Coaxial, Optical, Bluetooth, AES input.



3. 2 Connect to amplifier or active speakers

Use XLR or RCA cables to connect to amplifiers or active speakers. In order to avoid damage to your devices, please turn off the amplifier or active speakers before you connect them to D90 III Discrete.



4. Operation

4. 1 Power on & off / standby operation

(1) Power on & off: Press the power switch on the rear panel to turn D90 III Discrete on or off.

(2) Standby setting:

When it is working, press and hold the button on the front panel to enter standby state and press to exit standby state when it is standby. Or you can press the button on remote control to enter or exit standby state.

4. 2 Input channel switching

Press on the front panel or press the < or > button on the remote control to switch the input circularly.

4. 3 Output channel switching

Press the button on the front panel and Line Out on the remote control to switch the output in cycle: RCA / XLR / RCA+XLR.

4. 4 Volume setting

(1) Mute and unmute: Press the button on the remote control to mute D90 III Discrete, press the mute button again or adjust the volume to exit mute state.

(2) Volume adjusting: You can turn the volume knob or press the + or − button on the remote control to adjust the volume. Note that long pressing the + and − buttons on the remote control will quickly change the volume, so please be careful in order to protect your hearing.

Note: Volume is fixed to 0dB in DAC mode and volume adjusting is invalid in this mode.

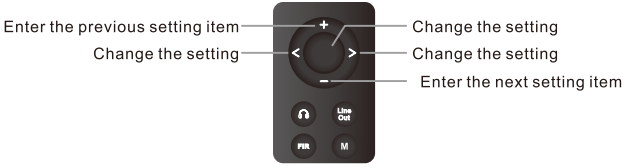
5.Setup Menu

5. 1 Enter the setup menu

After switching the power switch to "POWER OFF" , press and hold the front panel button while switching to "POWER ON" to enter the D90 III Discrete setup menu.

5. 2 Change settings

（1）The knob on front panel:
Rotate the knob: Choose setting item
Press the knob: Change the setting/OK
（2）The remote control:



5. 3 Save Settings

Please choose the 17th option of "Save and exit".

5. 4 Setting descriptions

1.Auto power on & off setting

Signal: Input signal will trigger the device to turn on, but if the current input is not connected or input signal is invalid in 1 minute, it will automatically enter the standby state. Once having detected valid signal, it will automatically return to working state. (Default)

TRG: 12V signal will trigger the device to turn on. When D90 III Discrete's Trigger In is connected to another device's 12V Trigger Out, D90 III Discrete's on/standby state can be controlled through this device. The D90 III Discrete will remain in standby state until Trigger In detects the signal change from 0V to 12V. When changing back to 0V, the D90 III Discrete will return to standby state.

Off: Disabled this function.

2.Screen brightness setting

L: low brightness
M: Medium brightness（Default）
H: high brightness
A: Auto has the same brightness as Medium. The difference is that when there is no operation after 30 seconds under Auto mode, the screen will be automatically turned off and only display the current input. You can press any button to light up the screen.

3.Line Out mode setting

PRE: Per-Amp mode, volume adjustable（Default）
DAC: Keep the maximum volume output and the volume is not adjustable.

Setup Menu

4.DSD Bypass

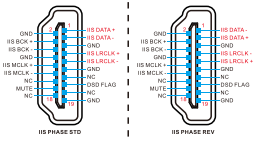
ON: DSD bypass enabled（Default）

OFF: DSD bypass disabled

5.IIS interface phase setting

STD: Standard phase（Default）

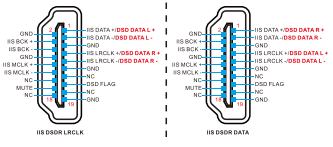
REV: Reverse phase



6.DSD channel setting for the IIS interface

LRCLK: DSDR using LRCLK（Default）

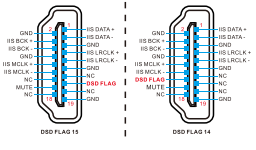
DATA: DSDR using DATA



7.DSD flag bit setting for the IIS interface

Pin15: Set pin 15 as the flag bit（Default）

Pin14: Set pin 14 as the flag bit



8. IIS MUTE

OFF (Default), HIGH, LOW

Note: When using the IIS interface, noise appears when switching the sample rate, you can choose Active high/low to eliminate the noise.

9.Maximum output level at 0dBFS

4V (Default), 5V

10.USB protocol version setting

UAC 2.0（Default）, UAC 1.0

11.Bluetooth setting

ON: Bluetooth enabled（Default）

OFF: Bluetooth disabled

Note: Disabling Bluetooth will not affect the use of the remote control.

12.PEQ setting

OFF: PEQ disabled（Default）

ON: PEQ enabled

13.PEQ project

NULL：

Unused:

1, 2, 3, 4, and 5 correspond to the adjusted frequency response curves for TOPPING Tune's device configuration.

Note: On the TOPPING Tune, you can save local configuration of frequency response curves to the D90 III Discrete, and the D90 III Discrete can use this configuration offline. When connecting to TOPPING Tune, the configuration cannot be switched on the unit.

14. BT clear

Sound Mode OFF (Default), Valve Sound, Transistor Sound

Clear the Bluetooth pairing of the phone and remote control

Note: Press any button of the remote control to automatically re-pair the remote control, the remote control stops flashing red light indicating successful pairing.

15. Channel balance setting

Balance C: Balance（Default）

Balance L +0.5dB: Setting range is L+0.5~10dB

Balance R +0.5dB: Setting range is +0.5~10dB

Note: Press the button or knob to adjust.

16.Volume step

Vol step 1.0dB: Volume step 1dB（Default）

Vol step 0.5dB: Volume step 0.5dB

Note: When the volume is from -50dB to-99 dB, you can choose to step by 0.5 or 1dB, and the step above-50 dB is fixed at 0.5dB.

17.Save settings and restart

Save and exit: Save settings and restart

18.Factory reset

Factory reset: Reset default

5. 5 Quick menu

When it is working, press the middle button of the remote control to enter the quick menu, the quick menu is extracted from the setting menu with 3 common settings, which includes

1. PEQ setting（12th in setup menu）
2. PEQ project（13th in setup menu）
3. Channel balance setting（15th in setup menu）

The way to change settings is as above, and press the middle button to exit .

6.Trouble shooting

If there are problems during use, please find the corresponding solutions through the following links.
https://www.toppingaudio.com/faq

If there are problems during use, please find the corresponding solutions
Finding Method: Window OS enters the search by pressing the Ctrl + F button at the same time (Mac OS presses the ⌘ command + F) . Then enter the device model to jump to FQA of the device.

If you still have problems or questions, please contact us: service@tpdz.net

7.Precautions

1. The output jacks shall not be grounded or short-circuited.
2. Do not keep the unit in a hot, humid environment or hit the unit strongly.
3. Opening the case instantly voids the warranty!
4. Indoor use only.
5. Topping accepts no liability for any loss or damage arising directly or indirectly from the failure of D90 III Discrete.
6. For improvement purpose, specifications subject to changes without prior notice.

8.Specifications

D90 III Discrete DAC parameters（LineOut/USB In@96kHz）		
	RCA	XLR
THD+N @ A-wt	<0.00007% @1kHz	<0.00006% @1kHz
THD @No-wt（45kBw）	<0.0004% @20-20kHz	<0.0002% @20-20kHz
SNR（A-wt）	127dB @1kHz	131dB @1kHz
Dynamic Range（A-wt）	126dB @1kHz	130dB @1kHz
Frequency Response	20Hz-20kHz（±0.5dB）	20Hz-20kHz(±0.5dB)
	20Hz-40kHz（±1.8dB）	20Hz-40kHz(±1.8dB)
Output Level	2.1Vrms @0dBFS（4V Mode）	4.2Vrms @0dBFS(4V Mode)
	2.6Vrms @0dBFS（5V Mode）	5.2Vrms @0dBFS(5V Mode)
Noise（A-wt）	<1.5uVrms	<1.8uVrms
Channel Crosstalk	-122dB @1kHz	-143dB @1kHz
Channel Balance	0.3 dB	0.3 dB
Output Impedance	50Ω	150Ω

* Note: All the above parameters were tested in the mode with output amplitude of 5V.

9. FCC WARNING

his 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.

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

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.

To maintain compliance with FCC' s RF Exposure guidelines, This equipment should be installed and operated with minimum distance between 20cm the radiator your body: Use only the supplied antenna.