



FRD1.0

User Manual

1.0 FARAD DIGITAL POWER CAPACITOR

INTRODUCTION:

- Thank you for your purchase of this hi-Quality digital capacitor.
- This manual provides detailed information for the function, installation and operation of this power capacitor.
- To avoid any possible injury and damage to your audio system, please study carefully the manual before you start the installation of the power capacitor.

SAFETY INSTRUCTIONS

WARNING:

- This power capacitor may explode and cause serious injury or death if abused or connected improperly.
- We recommend this item is fitted by a fully qualified auto electrician experienced in the fitting of this apparatus.
- Please refer to the installation manual for correct procedures when connecting, charging or discharging the capacitor.
- Do not expose the capacitor to voltages higher than specified at any time.
- Do not install the power capacitor in direct sunlight or extreme temperatures.

CAUTION:

Improper connection of this product can cause electrical damage to the vehicle and or its equipment. The manufacturer and seller assume no responsibility for any damage that could occur due to improper connection of this product.

PACKAGE CONTENTS

Included with your digital stiffening capacitor purchase:

- 1) Digital Stiffening Capacitor × 1pc
- 2) Mounting Brackets × 2pcs
- 3) A set of tools in a bag × 1pc
- 4) User manual × 1pc

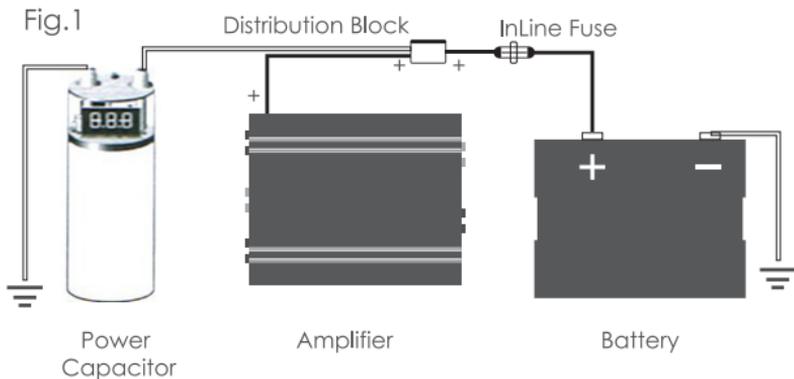
INSTALLATION

OPERATION

The digital-display capacitor is an energy storage device; it is designed to supplement the audio amplifiers power supply during high current demand. An example of such a demand is when music hits a low bass transient. The overall bass response of an audio system will be enhanced by using this device. It is capable of storing a large amount of energy which can be discharged very fast when needed. This makes the power cap a logical addition to the audio system as automotive batteries are not designed to deliver the current required in high power car audio installations. Another feature of the digital display capacitor is its availability to filter car AC voltage induced by the amplifier's power supply. This can otherwise cause audible noise in the sound system of the car.

INSTALLATION

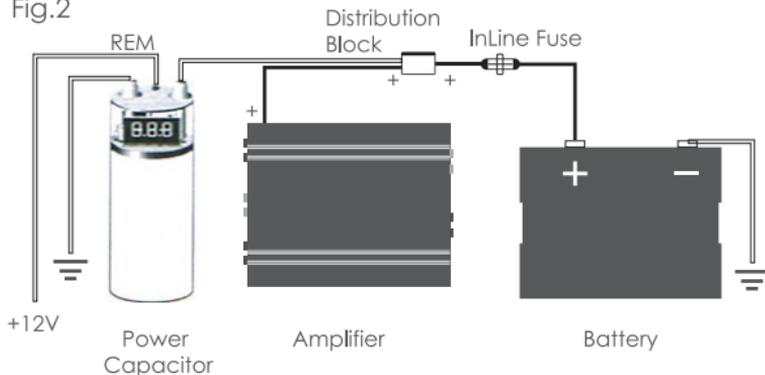
- 1) For maximum performance, the digital power capacitor should be installed as close to your amplifier as possible. The ideal location is one that allows short wiring runs while keeping the capacitor somewhat isolated from the heat created by the amplifier system.
- 2) The positive wire should be kept as short as possible and should be connected to the amplifier's battery supply cable. We recommend that a High-Performance Distribution block should be used to create a splice into this cable . No fuses should be installed in the wire between the power capacitor and the amplifier system, but make sure, that there is an appropriate fuse at the battery in the main supply cable.
- 3) The ground cable for the power capacitor should be kept as short as possible and should be connected directly to the vehicle's chassis at the bare metal ground surface. (See fig.1)



- 4) DO NOT ground the capacitor directly to the amplifier ground terminal or ground cable. The positive and negative wires to the capacitor should have the same gauge as the amplifier power wires. High performance 8 or 10AWG OFC power cables are a good choice for this application.
- 5) If the digital display has a remote terminal, remember to connect it with the remote terminal of your amplifier(s) using 18 to 20 AWG primary wire. (See fig.2)
 REM(ON/OFF)=REMOTE CONTROL

Connect the REM terminal to the automatic antenna connector of your car radio. Now when turning on and off your car radio, the amplifier will automatically switch on and off. A cable diameter of 0.5mm is sufficient.

Fig.2



POWER-UP PROCEDURES AND DISPLAY FUNCTIONS

- 1) Connect the power cable to the digital power capacitor. Connect the ground cable first and second positive cable.
- 2) The digital PCB system will turn on automatically at the first charging process. Then the status led will light and the decimal point display will flicker, to indicate the system is charging the capacitor.
- 3) When the capacitor has been fully charged, the decimal point display will not flicker and you will see the display show the DC voltage of the car's electronic system, which indicates the capacitor stay in "stand-by" mode, can operate automatically.
- 4) If the DC voltage of the car electronic system exceeds over +/- 0.1 ampere ,the digital pcb will automatically operate. (ex: the car audio system hits the bass or use some other high consumed electronic equipment .which cause large voltage drops)

- 5) If the DC voltage of the car does not exceed over +/- 0.1 ampere, the digital pcb will keep one original "on" status for one minute to assure the car electronic system is stable .The digital pcb will automatically turn off and stay in "stand-by" mode.
- 6) If the DC voltage of the car electronic system exceeds over +/- 0.1 ampere , the capacitor will automatically operate again .

SAFETY PROTECTION FUNCTION

If the user accidentally reverses the polarity of (+) and (-), it can cause a damage to the system and also be harmful for the user. Therefore, we have set error protection procedure in PCB which protects wrong connection and the unit will not turn on and the buzzer will warn. The digital power capacitor will only turn on if all wiring is connected correctly as per instruction.

簡介:

- 非常感謝您購買Nakamichi的優質數字電力電容器。
- 本手冊提供詳細的資訊功能、安裝和運行此電力電容器。
- 為了避免任何可能的損傷或破壞你的音響系統，在開始安裝電力電容器之前請仔細閱讀此手冊。

安全說明

警告

- 1) 如果濫用電力電容器或者連接不當，可能會引起爆炸，嚴重時會導致人員受傷或死亡。
- 2) 我們建議由在本設備安裝方面經驗豐富的完全合格的汽車電工進行安裝。
- 3) 連接電容器和/或給電容器充電/放電時，請參考安裝手冊中的正確步驟。
- 4) 任何時候都不要將電容器暴露在高於規定的電壓下。
- 5) 不要在陽光直射或極端溫度下安裝電力電容器。

注意事項:

不正當連接本產品會導致損壞車輛或設備的電路，製造商和賣方對因本產品連接不當而造成的任何損壞概不負責。

物品清單

您購買的數字電容器應包括以下物品：

- | | |
|------------|-----------|
| 數字電容器 (1個) | 用戶手冊 (1本) |
| 安裝支架 (2個) | 工具包 (1包) |

操作說明

產品介紹

數字顯示電容器是一個儲存能量的裝置，它是為了在音訊放大器的高電流需求的情況下補充汽車的電能。

如：當您正在播放的音樂包含一個響亮的、短暫的、深沉的重低音信號時，使用該裝置可提高您的系統整體低音播放效果。

由於汽車電源不能滿足現代汽車音響系統的供電，此汽車音響專用電容可以迅速向功放電路補充能量，為功率放大器的正常工作創造必要的工作條件。

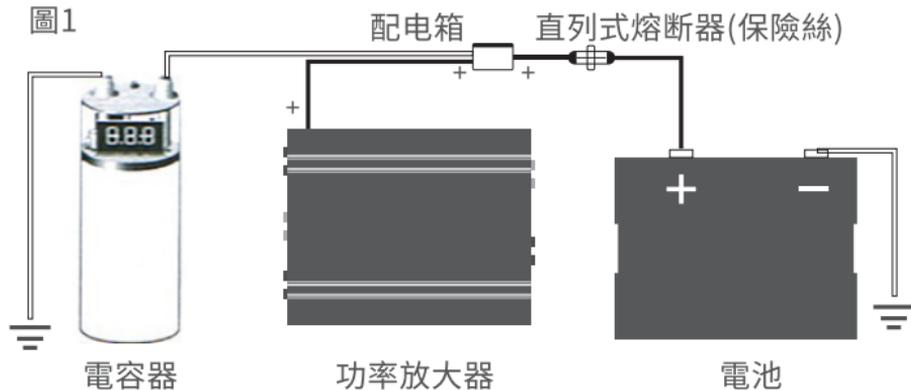
汽車音響電容的另一個特點是可以把功放電源中的雜訊波吸收，汽車音響電路中的主機和放大電路之前雜波被遏制。

安裝方法

- 1) 為了達到最佳的效果，電容器的安裝位置應儘量接近功率放大器，儘量使用較短電源線連接，同時將電容器安裝在不易接觸的地方，在一定程度上與功放產生的熱量隔離
- 2) 電源線儘可能短，建議使用專用電線分配座連接電池電路。保險絲不要安裝在電容和功率放大器之間。但是確保在電池的主要供應電纜上使用適當的保險絲來保護供電線路。
- 3) 電容器負極連線要儘可能短，並直接連接到汽車底盤的金屬裸面電纜。不要將電容器的負極直接連接功率放大器的負極終端或者負極線（請看圖1）。
- 4) 電容器的電源線應具有與功率放大器的電源線一樣的GA數，建議選用高性能的8或10AWG的OFC電線。

5) 若電容器是帶控制線的, 要用18~20AWG的主電線連接功率放大器的控制線(請看圖2)。將控制線的一端連接到汽車音響的自動天線連接器上。

圖1



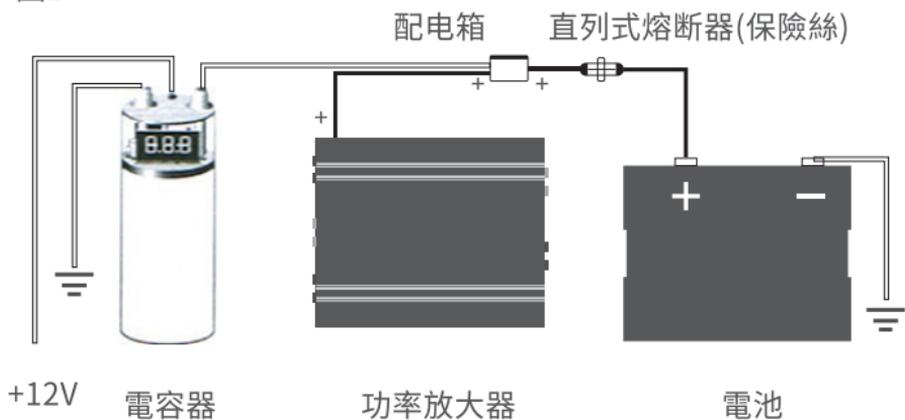
產品介紹

REM(ON/OFF)=REMOTE CONTROL(遠程控制線)

當開啟或關閉你的汽車音響系統時, 功率放大器會隨之自動打開或關閉。

電纜的直徑為0.5mm就足夠了。

圖2



充電過程和顯示功能說明

- 1) 連接電源線。首先連接負極，然後是連接正極。
- 2) 在第一次充電過程中，數顯線路板系統會自動打開。狀態顯示燈會自動亮，顯示電壓的數位小數點閃爍，這說明系統正在給電容器充電。
- 3) 當電容器已經完全充滿電時，小數點顯示不閃爍，此時數碼管顯示的是汽車的充電系統的直流電壓。
- 4) 如果汽車電子系統的直流電壓變動超過 $\pm 0.1A$ ，數顯線路板會自動啟動。(例如：由於汽車影音系統播放重低音或者使用其他一些高消耗的電子設備，而導致輸出電壓大幅下降的情況)。
- 5) 如果汽車電子系統的直流電壓變動不超過 $\pm 0.1A$ ，數顯線路板會保持原來的狀態一分鐘，以確信汽車的電子系統是穩定的，然後線路板上的數顯會自動熄滅，電容器進入“待命”狀態。
- 6) 在汽車電子系統的直流電壓變動超過 $\pm 0.1A$ 的情況下，電容器自動會再次工作。

如果用戶不小心將正負極接反，它可能會損壞系統，也可能對使用者造成傷害。因此，我們在線路板內設置了繼電器，它能夠在接線錯誤時保護電容器，使裝置不能啟動，同時蜂鳴器發出警告。只有根據指示說明操作，在所有電線連接正確的情況下，電容器才能正常工作。



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