

MUSICAL FIDELITY

768KHz UPSAMPLING  
32 BIT DAC

**m6**SDAC

Instruction Manual

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## Introduction

Thank you for purchasing the Musical Fidelity M6s DAC.

The M6s DAC consists of four stereo 32 bit DACs arranged in a fully differential (balanced) dual mono topology. It also features a top quality over sampling 32 bit sample rate converter circuit, which asynchronously up-samples all incoming data rates to 768 kHz internally.

This moves the digital artefacts to well outside the audio band, allowing easy removal without detriment to the top end of the audio band. Our well tuned filtering circuit gives immeasurably small jitter, noise and distortion artefacts allowing astounding imaging, detail and transparency, to deliver all music types exactly as the artist originally intended.

This revised design now takes into account different sampling frequencies with the upper bandwidth now

extending to 90 kHz for 384 kHz natively sampled input signals.

The M6s DAC fully asynchronous USB input copes with PCM inputs up to 32-bit 384 kHz sample rate and DSD 128. This takes full advantage of the higher quality recordings now available. It works with all personal computers running Microsoft Windows, Linux and Mac OS.

The M6s DAC has been carefully designed to be partnered with other M3 and M6 products. Using any of these combinations will yield one of the best high-fidelity systems available at any price.

Used carefully, it should give many years of outstanding musical reproduction.

If there are any questions about the audio system, please consult the dealer who is there to help and advise.

## Safety Information

**WARNING:** Any modifications to this product not expressly approved by Musical Fidelity who is the party responsible for standards compliance could void the user's authority to operate this equipment.

This unit is supplied in the U.K. with a mains lead fitted with a moulded 13 amp plug. If, for any reason, it is necessary to remove the plug, please remove the fuse holder and dispose of the plug safely, out of reach of children.

It must not be plugged into a mains outlet.

The wires in the mains lead supplied with this appliance are coloured in accordance with the following code

Green and yellow.....	Earth
Blue.....	Neutral
Brown.....	Live

**WARNING - This appliance MUST be earthed.**

As the colours of the wires of the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in the plug, proceed as follows:

- The wire which is coloured green and yellow must be connected to the terminal in the plug which is marked with the letter E or coloured green or green-and-yellow, or by the earth symbol: 
- The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.
- The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.
- If connecting to a BS1363 plug, a 13 amp fuse must be used.

## Precautions & User Information

This new M6s DAC is designed and built to provide trouble-free performance, but as with all electronic devices it is necessary to observe a few precautions:

Note: Unauthorised opening of the equipment will invalidate any warranty claim.

- Heed all warnings shown on the back of the product.
- Only connect the M6s DAC to a mains outlet having the same voltage as marked at the back of the unit.
- Always ensure that when disconnecting and reconnecting your audio equipment the mains supply is switched off.
- Position the mains lead and signal interconnects where they are not likely to be walked on or trapped by items placed on them.
- Do not use near water, or place water-filled containers on the M6s DAC, for example, a flower vase or potted plants. If water does spill inside, immediately pull out the mains plug from the wall socket and inform the dealer, who should then check the unit before further use. Entry of liquid into the M6s DAC is dangerous, and may cause electric shock or fire hazard.
- Do not place the unit near direct heat sources such as radiators, direct sunlight or other equipment.
- Do not remove any covers or try to gain access to the inside. There are no user adjustments or fuses to change without qualification. Refer all service work to an authorised Musical Fidelity agent.

The electronics in modern hi-fi equipment are complex and may, therefore, be adversely affected or damaged by lightning. For protection of the audio system during electrical storms, remove the mains plugs.

If after-sales service is required, to help the dealer identify the M6s DAC please quote the serial number located on the rear panel of the unit.



## Installation

### Introduction

This unit will deliver the ultimate performance possible from any digital source. It is designed to upgrade CD players, TVs, set-top-boxes, DAB tuners, and any other source providing a variety of digital outputs.

Note: In normal operation, the unit dissipates a small quantity of power at all times, and it is important that it is adequately ventilated. The M6s DAC must be protected from humidity – if the unit is moved from a cold place to a warm room, leave the unit for an hour or so to allow sufficient time for the moisture to evaporate.

### Cleaning

Before cleaning the unit, switch off power at the mains switch and remove the mains plug from the wall socket. Clean the cabinet and remote control unit using a moist cloth. Using solvents, white spirit or thinners is not advised, as they could damage the surface finish.

### Installation

Position the M6s DAC on a stable, horizontal surface where there is no risk of it being knocked, or subjected to vibration such as from loudspeakers.

### Power Connections

The M6s DAC is supplied with a standard IEC mains cable which plugs into the IEC socket at the back of the unit.

### Audio Output Connections

**RCA audio outputs:** Use good quality RCA phono audio cables (fully connected signal and ground), for optimum signal transfer.

**XLR audio outputs:** Use good quality XLR audio cables (fully connected hot and cold signals and ground), for absolute optimum signal transfer.

### Digital input connections

**COAXIAL inputs:** Connect RCA digital source to digital input RCA socket. Use a good quality fully connected (signal and ground) coaxial digital cable, for optimum signal transfer.

**OPTICAL input:** Connect optical digital source to optical input socket. Use a good quality “Toslink” cable, for optimum signal transfer.

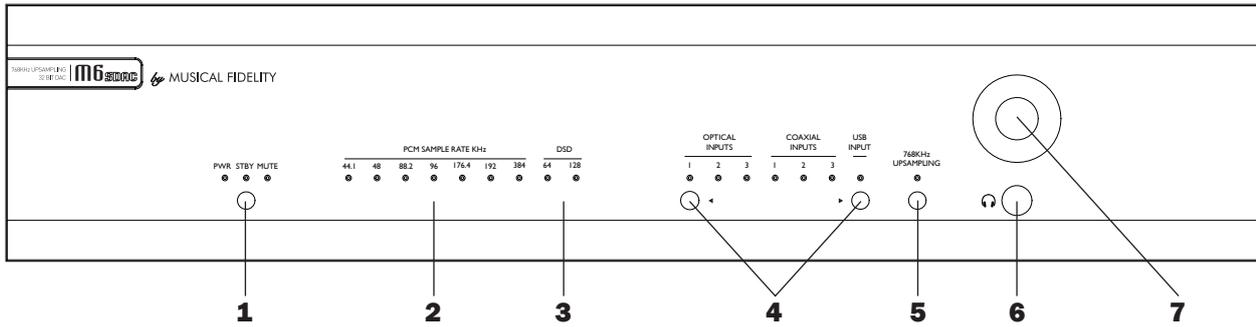
**USB input:** Connect computer or similar USB “host” source to USB input socket. Use a good quality USB 2.0 “A to micro-B” type cable (not supplied), for optimum signal transfer. Try to keep USB cable length to a minimum for best reliability. The USB standard maximum for a single cable is 5M, after which repeaters (normally mains-powered USB hubs) are required. We do however; recommend avoiding such a setup if at all possible.

### Interconnects

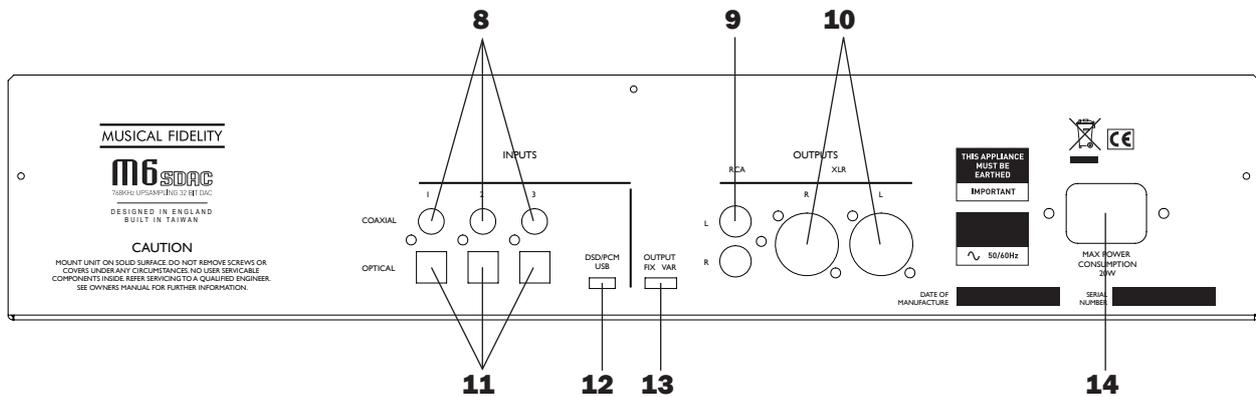
Note: Musical Fidelity currently do not make any interconnecting cables other than those supplied with the unit. Musical Fidelity does not endorse any other manufacturer’s cables.

If necessary, please refer to the dealer who can advise on quality cables for any particular setup

## Facilities & Connections

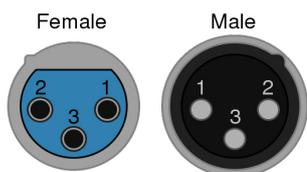


- |          |                                      |          |                  |
|----------|--------------------------------------|----------|------------------|
| <b>1</b> | POWER Mains ON/STBY button and LED's | <b>5</b> | IR Reciever      |
| <b>2</b> | PCM Sample rate LED's                | <b>6</b> | Headphone socket |
| <b>3</b> | DSD Rate LED's                       | <b>7</b> | Volume control   |
| <b>4</b> | INPUT Selectors (left and right)     |          |                  |



- |           |                              |           |                       |
|-----------|------------------------------|-----------|-----------------------|
| <b>8</b>  | COAXIAL Digital input 1,2,3  | <b>12</b> | DSD/PCM USB Input     |
| <b>9</b>  | RCA Analogue output L/R      | <b>13</b> | Fixed/Variable output |
| <b>10</b> | XLR Balanced output L/R      | <b>14</b> | Mains IEC socket      |
| <b>11</b> | OPTICAL Digital inputs 1,2,3 |           |                       |

### Standard XLR Balanced input/output lead connections:



### Pin functions:

- |          |                                   |
|----------|-----------------------------------|
| <b>1</b> | Ground, 0V                        |
| <b>2</b> | Normal polarity ("hot" or "+")    |
| <b>3</b> | Inverted polarity ("cold" or "-") |

(for reference only, no XLR signal leads supplied)

## Operation

Once the M6s DAC unit is correctly wired up, and plugged into mains, the orange STBY led should be lit.

In this mode the M6s DAC is consuming a minimal amount of power.

To switch the unit on, press the Power button (1) on the front of the unit. The blue PWR indicator will light along with the red MUTE indicator. After a few seconds, when it has stabilised, the MUTE function will switch off and the unit is ready for use.

## Input selection

The M6sDAC has a total of seven inputs available. These are Optical 1,2 and 3, Coaxial 1,2 and 3 and also USB.

When the power cable is inserted into the Mains IEC socket **14** the Optical 1 input is selected by default.

When the M6s DAC is taken out of sleep mode, it will default to the last input selected.

From the front panel you can cycle through the inputs by using the ◀ and ▶ buttons (4). Pressing ▶ while on the USB input will cycle back to Optical 1. Whilst on Optical 1 the ◀ button will take you to the USB input again.

The remote control has direct access buttons for each input. Simply press the appropriate button to move directly to that input.

When a valid signal is received on the selected input, an indicator in either group **2** or **3** will light to show you the incoming sample rate. The upsampling LED indicator will light to show that an analog signal is now being output.

For devices with “Surround Sound” digital outputs, it may be necessary to set such outputs to either “2 channel”, “stereo”, “PCM” or similar to pass on the correct stream to the M6s DAC.

## Coaxial Inputs

All coaxial inputs are capable of accepting up to 24 bit 192 kHz PCM stereo data streams. The incoming data sample rate is displayed on the front panel LED's for reference.

## Optical Inputs

The OPTICAL input is capable of accepting up to 24 bit 96 kHz PCM stereo data streams. The incoming data sample rate is displayed on the front panel LED's for reference.

Note: The indicators **2** and **3** show the actual sample rate of the digital data received by the M6s DAC. Some playback software may have altered this compared to the original file. .

## USB Input

The USB input is capable of accepting up to 32 bit 384 kHz PCM or DSD 128 data streams.

## Computer settings for USB

A good quality USB 2.0 A to Micro B cable is required to connect the unit to the computer. Normal USB standards stipulate that this should be 5M or less; and we recommend keeping it as short as possible.

**WARNING:** Older USB cables are often heavy and bulky and must be supported to avoid damage to the USB socket. Any physical damage caused to this socket will not be covered by warranty.

Plug the Micro B (small rectangle) end into the socket in the back of the unit, and the A (rectangle) end into a free USB socket on the computer.

If an older style USB B with a larger, square connector is to be used then the supplied adaptor can be used.

The computer should now detect the M6s DAC:

- Linux kernel 2.6.33 or later.
- Apple OS X® 10.6.4 or later.
- Windows 10 Creators Edition.

No other drivers are required for the above operating systems.

For PCs running older Windows operating systems, a driver download is required. This is available from the M6s DAC product page on the Musical Fidelity website. You can also find additional details about driver setup on the Musical Fidelity website.

Any device that is compliant to the USB Audio Class 2.0 standard should also operate with the M6s DAC. However Musical Fidelity are unable to provide support for operation with anything other than the system listed above.

Additionally, the use of third party software such as "ASIO" or similar is not supported by Musical Fidelity. In case of difficulty with any of these software types, please consult the relevant software documentation and/or its support services.

CD, MP3, WAV, AAC/+, OGG, FLAC, and any other audio file types played on suitable playback software will now play through the unit.

Note: This USB input has a high-speed serial data processor, and by its nature, requires a very high volume of USB bandwidth. It will benefit greatly from being the only device connected on its USB 'bus'. Sharing the same bus with other devices could cause unwanted artifacts such as dropouts or temporary loss of signal. This especially includes the use of the unit on a USB hub/splitter whether alongside other USB components or not. A direct connection to the host computer by shortest USB 2.0 lead possible is very much recommended.

## Outputs

On the rear of the unit are 2 sets of outputs. RCA (single ended) and XLR (balanced).

You can connect the M6s DAC to your amplifier using whichever is more convenient.

The outputs can operate as either fixed or variable mode. Fixed mode is suitable for connection to other equipment which offers a volume control. Variable mode allows connection directly to power amplifiers or active speakers where the M6s DAC provides the volume control.

Choosing between these settings is done by using the small switch **13** on the back panel.

When in variable, mode the output level can be controlled by either the volume knob on the front panel **7** or the remote control.

## Headphones

The M6sDAC also includes a high quality headphone amplifier.

Connecting headphones to socket **6** will automatically mute the main outputs. The volume control on the front panel **7** or the remote control now adjust the volume sent to the headphones.

Whilst headphones are connected the MUTE indicator on the front panel will be lit to indicate the main outputs are muted.

Note: When headphones are connected to socket **6** and the back panel Fixed/Variable output **13** is set to variable mode, the volume will remain at the volume set by the volume control if the headphones are removed.

## Remote Control Handset

The remote control shown below enables functions from this and other units from the M3, M5 and M6 ranges to be operated from a convenient distance.

The remote control buttons are split into 3 distinct areas.

The three rows of grey buttons at the bottom are used to control the M6s DAC and are detailed below.

The blue buttons control an amplifier such as the M6si. Consult the amplifier manual for more information.

The remaining grey buttons located in the upper section control a CD player such as M6scd. Consult the CD player manual for more information

As the handset uses an invisible infra-red light beam, the front edge must be pointed directly towards the receiver window at the front of the player, without visual obstruction between them.

If the range of the remote control greatly decreases, replace the batteries with new ones. Do not mix old and new batteries – two are required, size AAA, LR03 or SUM-4.

Please dispose of used batteries in accordance to local battery disposal regulations.

- COAX 1**            selects COAXIAL input 1
- COAX 2**            selects COAXIAL input 2
- COAX 3**            selects COAXIAL input 3
- OPTICAL 1**        selects OPTICAL input 1
- OPTICAL 2**        selects OPTICAL input 2
- OPTICAL 3**        selects OPTICAL input 3
- USB**                selects USB input
- STBY**                switch the M6sDAC between standby and operating mode
- VOLUME ▼ ▲**     controls main output of M6sDAC in variable mode or headhone level when connected.



## Troubleshooting

Problem	Probable Cause	Remedy
No power.	Power plug is not inserted into socket correctly.	Plug in securely into unit's IEC socket.
Excessive hum from system speakers.	Audio connector plug not fully pushed in. Cable Fault. Unsuitable Cable (e.g. cable grounds not connected).	Insert plug securely. Check cable is connected at both ends. Some "esoteric" cables have internal wiring intentionally disconnected/modified. For best results on all inputs, please use good quality screened coax; signal and screen directly connected both ends.
Digital input not working.	No connection to that input. Incorrect input selected. Wrong data type sent to DAC.	Check connection and cable. Select correct input. Check source digital output is set for "16 bit stereo PCM" or similar. This particularly applies to some TVs, most DVD players, and other home theatre type devices that may give a multichannel digital output. Refer to the source's manual for further information.
No audio output, or too low level output.	Incorrect or missing connections. USB Driver not selected.	Check connections and make sure they are secure. See the Musical Fidelity website for relevant OS setup information.
Dropouts in sound.	Digital input lead not properly connected. Faulty digital input lead. Faulty optical lead.	Check input lead is fully secured. Change lead. Please use a good quality straight-through signal-and-ground phono to phono lead. Optical lead breakage. This can occur if the optical lead is bent into a radius too small. Avoid tight corners in routing optical leads.
No audio output from USB input.	USB Cable not connected. M6 USB Driver not selected.	Check connections and make sure they are secure. See software section for relevant OS setup information. Please check device is listed in device manager (Windows®) or in Sound, audio devices for MAC OS X. Make sure the Musical Fidelity USB audio device is selected as the default OUTPUT device. Check USB port functions with another device.
Not detected when connected to USB.	USB Cable faulty. USB not working/enabled on computer. Correct USB drivers not installed.	Check and replace cable. Check USB port functions with another device. Download and install the device driver from the software downloads section on the Musical Fidelity website.
Dropouts in sound (USB input).	Shared USB port with another device. Computer busy with another application. Computer low on resources.	Avoid sharing the USB port with other devices, if possible. At times an application (program) may intervene, sometimes invisibly e.g. a virus scanner. When this happens, computer resources are temporarily used up, and playback may suffer. This is not a fault. Try running fewer applications if possible.

## Specifications

<b>Output (RCA/XLR)</b> Output impedance Output, digital 0dB level	47 ohms RCA output - 2.2V R.M.S. nominal (RCA) 4.4V R.M.S. (XLR)
<b>Headphones</b> Power Output devices Output impedance THD Signal/noise ratio Frequency response	1.5W / channel into 32 $\Omega$ 2 per channel 40 $\Omega$ Suitable for 10-600 $\Omega$ headphones <0.005% typical 20Hz to 20kHz >115dB "A" wtd +0, -1dB 20Hz to 50kHz
<b>DAC</b> DAC circuit Total correlated jitter Linearity Frequency response Channel separation Signal to noise Total harmonic distortion	32 bit Hyperstream II <12 picoseconds peak to peak < $\pm$ 0.1dB down to -96dB <2Hz to 90kHz typically, -3dB (192 kHz input sample rate) >105dB 20Hz to 20kHz >120dB "A"- wtd <0.0012% 10Hz to 20kHz
<b>Connections</b> Line level outputs  Digital inputs	1 pair line level RCA (phono), left and right 1 pair line level XLR (balanced), left and right  3 RCA coaxial SPDIF in, 32-192 kbps (16-24 bit stereo PCM) 3 TOSLINK optical in, 32-96 kbps (16-24 bit stereo PCM) 1 USB 2.0 in, type 'Micro B' connector for computer/PDA/other "host" 16-32 bits, 32-192 kbps fully asynchronous (Actual data determined by source file/computer software settings)
<b>Power requirement</b> Mains voltages Consumption	230V/115V Internally set or 100V optional 20 Watts maximum
<b>Weight</b> Unit only, unboxed In shipping carton & inc. accessories	6.9 kg 10.3 kg
<b>Unit dimensions</b> wide High, including feet Deep (front to back) including terminals	440 mm 100 mm 380 mm

Musical Fidelity reserves the right to make improvements which may result in specification or feature changes without notice. E&OE.

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Mac and Mac OS are trademarks of Apple Inc., registered in the U.S. and other countries

All other trademarks used herein are the property of their respective owners.

## Item Disposal Information for Europe



### DISPOSAL

The crossed out wheeled bin label that appears on the back panel of the product indicates that the product must not be disposed of as normal household waste. To prevent possible harm to the environment please separate the product from other waste to ensure that it can be recycled in an environmentally safe manner. Please contact your local government office or your retailer for available collection facilities.



### DISPOSITION

La poubelle sur roulettes barrées X, qui apparaît en logo sur le panneau arrière du produit, indique que celui-ci ne doit pas être traité comme un déchet domestique commun. Afin de protéger l'environnement, ce produit électronique devra être géré séparément et donc recyclé selon les nouvelles normes Européennes Rohs concernant les déchets d'appareils électroniques. Prière de contacter les services concernés gouvernementaux ou votre point de vente pour l'élimination et l'enlèvement de déchets électroniques équipés de composants électroniques.



### DISPOSAL

La etiqueta cruzada hacia fuera del compartimiento que aparece en el panel trasero del producto indica que el producto no se debe reciclar como basura normal de la casa. Para prevenir daños posible al ambiente separe por favor el producto de otras basura para asegurarse de que puede ser reciclada de una manera ambientalmente segura. Entre en contacto por favor a su oficina gubernamental local o a su minorista para las instalaciones disponibles de la colección.



### RIFIUTI

L'etichetta del cassonetto barrato riportato sul retro dell'apparecchio indica che il prodotto non deve essere smaltito tramite la procedura normale di smaltimento dei rifiuti domestici. Per evitare eventuali danni all'ambiente, separare questo prodotto da altri rifiuti domestici in modo che possa venire riciclato in base alle procedure di rispetto ambientale. Per maggiori dettagli sulle aree di raccolta disponibili, contattate l'ufficio governativo locale od il rivenditore del prodotto.



### FACHGERECHTE ENTSORGUNG:

Das auf der Geräterückseite angebrachte Label deutet darauf hin, dass das Produkt nicht mit konventionellem Hauskehricht entsorgt werden darf. Um Schäden und Verschmutzungen an Umwelt und Mensch zu vermeiden, muss das Produkt fachgerecht entsorgt und von anderem Abfall getrennt werden. Wenden Sie sich bei Fragen hierzu an Ihren Fachhändler oder an eine öffentliche Informationsstelle.

### AFVAL

Het label op de achterzijde van dit apparaat, een afvalbak op wielen met een kruis doorgehaald, geeft aan dat dit apparaat niet samen met gewoon huishoudafval mag worden weggegooid. Om mogelijke schade aan onze leefomgeving te voorkomen dient dit apparaat, gescheiden van gewoon huishoudelijk afval, te worden afgevoerd zodat het op een milieuvriendelijke manier kan worden gerecycled. Neem voor beschikbare inzamelplaatsen contact op met uw gemeentelijke reinigingsdienst of met uw elektronica leverancier.



### HÄVITTÄMINEN

Yliüksattua jäteastiaa kuvaava tarra tuotteen takalevyssä kertoo, että tuotetta ei saa käsitellä normaalina talousjätteenä. Ympäristön suojelemiseksi on tuote pidettävä erillään muusta jätteestä ja se on kierrätettävä ekologisesti kestävällä tavalla. Ota yhteyttä laitteen myyjään tai Pirkanmaan Ympäristökeskukseen lähimmän kierrätyskeskuksen löytämiseksi.



### AFSKAFNING

Logoet med en skraldespand med kryds over på bagsiden af apparatet indikerer at dette produkt ikke må kasseres som normal husholdningsaffald. For at forebygge mulig skade på miljøet, bedes De separere dette produkt fra andet affald, og sikre at det bliver genbrugt på en miljørigtig måde. Kontakt venligst de lokale myndigheder eller din forhandler for oplysning om nærmeste tilgængelige opsamlingssted for elektronikaffald.



### ΔΙΑΔΙΚΑΣΙΑ ΑΠΟΡΡΙΨΗΣ

ΤΟ ΣΗΜΑ ΜΕ ΤΟΝ ΔΙΑΓΕΓΡΑΜΜΕΝΟ ΤΡΟΧΗΛΑΤΟ ΚΑΔΟ ΑΠΟΡΡΙΜΑΤΩΝ ΣΤΗΝ ΠΙΣΩ ΟΨΗ ΤΟΥ ΜΗΧΑΝΗΜΑΤΟΣ ΔΗΛΩΝΕΙ ΟΤΙ ΤΟ ΠΡΟΙΟΝ ΑΥΤΟ ΔΕΝ ΠΡΕΠΕΙ ΝΑ ΔΙΑΧΕΙΡΙΣΘΕΙ ΣΑΝ ΣΥΝΗΘΙΣΜΕΝΟ ΟΙΚΙΑΚΟ ΑΠΟΒΛΗΤΟ. ΠΡΟΣ ΑΠΟΦΥΓΗ ΕΝΔΕΧΟΜΕΝΗΣ ΕΠΙΒΑΡΥΝΣΗΣ ΤΟΥ ΠΕΡΙΒΑΛΛΟΝΤΟΣ, ΞΕΧΩΡΙΣΤΕ ΤΟ ΠΡΟΙΟΝ ΑΠΟ ΤΑ ΑΛΛΑ ΑΠΟΡΡΙΜΑΤΑ ΩΣΤΕ ΝΑ ΕΞΑΣΦΑΛΙΣΘΕΙ Η ΑΝΑΚΥΚΛΩΣΗ ΤΟΥ ΜΕ ΤΟΝ ΠΡΕΠΟΝΤΑ ΤΡΟΠΟ. ΠΑΡΑΚΑΛΟΥΜΕ ΝΑ ΕΠΙΚΟΙΝΩΝΗΣΕΤΕ ΜΕ ΤΗΝ ΤΟΠΙΚΗ ΥΠΗΡΕΣΙΑ ΑΝΑΚΥΚΛΩΣΗΣ Η ΜΕ ΤΟ ΚΑΤΑΣΤΗΜΑ ΑΓΟΡΑΣ ΓΙΑ ΠΕΡΙΣΣΟΤΕΡΕΣ ΛΕΠΤΟΜΕΡΕΙΕΣ.



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