

# ESOTERIC

G-03X

Master Clock Generator

OWNER'S MANUAL



**CAUTION**  
RISK OF ELECTRIC SHOCK  
DO NOT OPEN



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

## IMPORTANT SAFETY INSTRUCTIONS

- 1) Read these instructions.
- 2) Keep these instructions.
- 3) Heed all warnings.
- 4) Follow all instructions.
- 5) Do not use this apparatus near water.
- 6) Clean only with dry cloth.
- 7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- 8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- 10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- 11) Only use attachments/accessories specified by the manufacturer.
- 12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
- 13) Unplug this apparatus during lightning storms or when unused for long periods of time.
- 14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.



- Do not expose this apparatus to drips or splashes.
- Do not place any objects filled with liquids, such as vases, on the apparatus.
- Do not install this apparatus in a confined space such as a book case or similar unit.
- The apparatus draws nominal non-operating power from the AC outlet with its STANDBY/ON switch in the standby position.
- The apparatus should be located close enough to the AC outlet so that you can easily grasp the power cord plug at any time.
- An apparatus with Class I construction shall be connected to an AC outlet with a protective grounding connection.
- Batteries (battery pack or batteries installed) shall not be exposed to excessive heat such as sunshine, fire or the like.
- Excessive sound pressure from earphones and headphones can cause hearing loss.

**WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.**

### CAUTION

- DO NOT REMOVE THE EXTERNAL CASES OR CABINETS TO EXPOSE THE ELECTRONICS. NO USER SERVICEABLE PARTS ARE WITHIN!
- IF YOU ARE EXPERIENCING PROBLEMS WITH THIS PRODUCT, CONTACT TEAC FOR A SERVICE REFERRAL. DO NOT USE THE PRODUCT UNTIL IT HAS BEEN REPAIRED.

For U.S.A.

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 equipment and/or 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.

CAUTION

Changes or modifications to this equipments not expressly approved by TEAC CORPORATION for compliance will void the user’s warranty.

For European customers

Disposal of your old appliance

1. When this crossed-out wheeled bin symbol is attached to a product it means the product is covered by the European Directive 2002/96/EC.
2. All electrical and electronic products should be disposed of separately from the municipal waste stream via designated collection facilities appointed by the government or the local authorities.
3. The correct disposal of your old appliance will help prevent potential negative consequences for the environment and human health.
4. For more detailed information about disposal of your old appliance, please contact your city office, waste disposal service or the shop where you purchased the product.



Contents

Thank you for choosing Esoteric. Read this manual carefully to get the best performance from this unit.

Contents. . . . . 3

Features . . . . . 4

Before Use . . . . . 4

Identifying the Parts . . . . . 5

Connection. . . . . 6

Basic Operation. . . . . 8

Dimmer . . . . . 9

Specifications . . . . . 10

Troubleshooting . . . . . 10

## Features

### Clock Generation by High-Precision Crystal Oscillator

The G-03X uses an internal high-precision crystal oscillator to generate a word sync clock.

### Equipped with OCXO

The master clock serving as the reference for this unit is equipped with an oven-controlled crystal oscillator (OCXO) offering superior temperature stability. This OCXO contains a built-in crystal unit and oscillation circuit in an internal temperature-controlled, compact constant-temperature bath, resulting in the realization of an extremely high degree of frequency stability (within  $\pm 0.1$  ppm at  $-20^{\circ}\text{C}$  to  $70^{\circ}\text{C}$ ). The central frequency when shipped from the factory is within  $\pm 0.1$  ppm.

### Up to 192 kHz Word Sync clock production

The G-03X can output following word clocks (sync signals):  
44.1 kHz, 88.2 kHz, 176.4 kHz,  
48 kHz, 96 kHz, 192 kHz,  
Universal clock (100 kHz)

As an additional plus, the output circuitry consists of 3 separate channels with a total of 6 output terminals, thus offering the capability of handling a variety of audio equipment controlled by different word clocks. Also, each of the 3 output channels is switch-selectable between 1xFs, 2xFs and 4xFs, so you can, for example, get an 88.2 kHz and a 176.4 kHz machine synchronized by connecting them to the single G-03X.

### Universal Clock Output

A universal clock output (100 kHz) has been provided for Esoteric's original format. Connection with a universal clock-compatible device makes it possible to support various frequency sources.

### Ready for connection to external oscillators

Clocks can also be generated by inputting an external 10 MHz reference signal. This system can be further upgraded by connecting, for example, a rubidium oscillator or an ultra-high-precision cesium atomic oscillator.

### User-Friendly Front Panel for Easy Operation

All functions can be easily controlled simply by pressing a button located on the front panel, and operating status can be confirmed at a glance from the highly legible display unit.

## Before Use

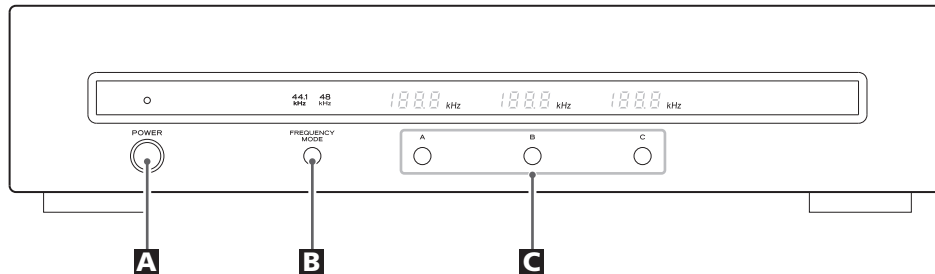
### Read this before operation

- Be careful to avoid injury when moving the unit, on account of its weight. Get someone to help you if necessary.
- To protect easily scratched furniture, you may stick the felt supplied with the unit to the feet.
- As the unit may become warm during operation, always leave sufficient space around the unit for ventilation.
- The voltage supplied to the unit should match the voltage as printed on the rear panel. If you are in any doubt regarding this matter, consult an electrician.
- Choose the installation location of your unit carefully. Avoid placing it in direct sunlight or close to a source of heat. Also avoid locations subject to vibrations and excessive dust, heat, cold or moisture.
- Do not place the unit on the amplifier/receiver.
- Do not open the cabinet as this might result in damage to the circuitry or electrical shock. If a foreign object should get into the unit, contact your dealer or service company.
- When removing the power plug from the wall outlet, always pull directly on the plug, never yank the cord.
- Do not attempt to clean the unit with chemical solvents as this might damage the finish. Use a clean, dry cloth.
- Keep this manual in a safe place for future reference.

### Maintenance

If the surface of the unit gets dirty, wipe with a soft cloth or use diluted neutral cleaning liquid. Be sure to remove any fluid completely. Do not use thinner, benzine (naphtha) or alcohol as they may damage the surface of the unit.

## Identifying the Parts



### **A** POWER switch

Use this switch to turn the unit on and off.

- When the G-03X is turned on, the process of pre-heating the oscillator to its operating temperature gets started. It takes a few minutes before the oscillator is ready for operation.

### **B** FREQUENCY MODE button

Use this to select the fundamental frequency of the word clock.

#### **44.1 kHz:**

Select this for playback of CD, Super Audio CD, etc.

#### **48 kHz:**

Select this for playback of DVD, DAT, etc.

- Hold down this button for more than 2 seconds to dim the display on the front panel (see page 9).

### **C** Frequency change buttons [A/B/C]

The frequency of the each line (A/B/C) is changeable.

Following frequency can be selected for each FREQUENCY MODE.

When OFF is selected, the indicator turns off.

#### **When the FREQUENCY MODE is set to 44.1 kHz:**

44.1 kHz, 88.2 kHz, 176.4 kHz, 100 kHz, OFF

#### **When the FREQUENCY MODE is set to 48 kHz:**

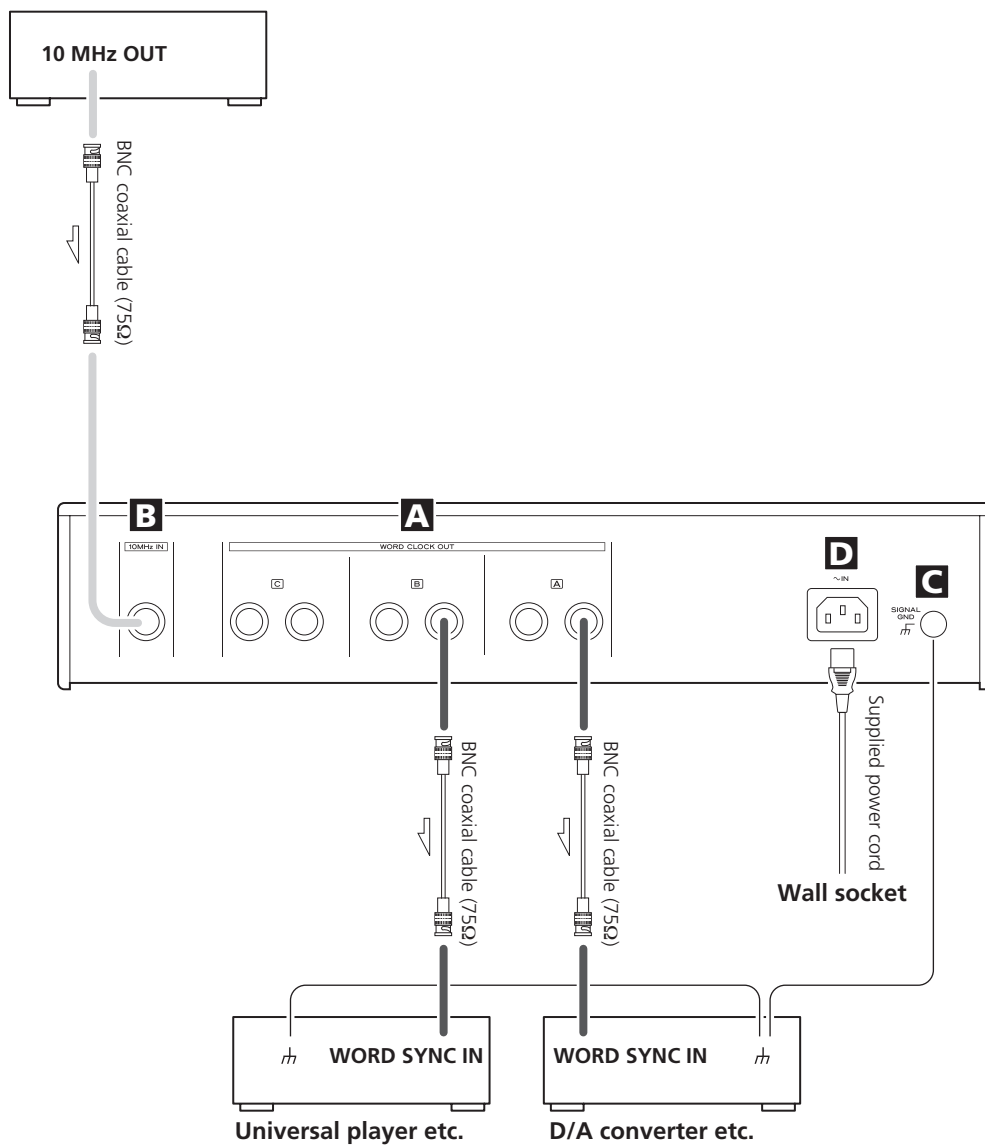
48 kHz, 96 kHz, 192 kHz, 100 kHz, OFF

## Connection

### CAUTION:

- Switch off the power to all equipment before making connection.
- Read the instructions of each component you intend to use with this unit.
- For other connections, read the instructions of each component you intend to use with this unit.

### External rubidium 10MHz oscillator etc.



## **A** WORD CLOCK OUT terminals

These terminals output precise word synchronization signals. Connect these OUT terminals to the WORD SYNC IN terminals of the other digital equipment (CD player, D/A converter, etc.), using a commercially available BNC coaxial cable (75 ohms).

- Each of the A, B, and C channels is switch-selectable between 1xFs, 2xFs, 4xFs and 100 kHz. So you can, for example, connect an 88.2 kHz and a 176.4 kHz machine to the single G-03X and synchronize them. Three buttons (A, B, and C) are provided on the front panel for each channel.

## **B** 10MHz IN terminal

You can use the input of external 10MHz reference frequency. Connect this terminal to the output terminal of the external 10MHz oscillator. Use a commercially available BNC coaxial cable for connection.

When a 10 MHz signal is input to this terminal, the unit automatically generates a clock using an external 10 MHz oscillator (instead of the internal crystal oscillator).

- If the output level of the oscillator is outside the allowable input range of this unit, the oscillator cannot be used. Refer to the oscillator manual for information on the output level and accuracy of the oscillator.

## **C** SIGNAL GND connection

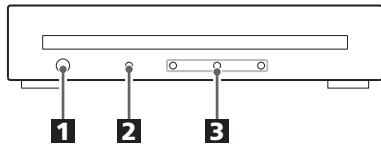
Audio quality might be slightly improved by connecting the SIGNAL GND terminal of another device using commercially available vinyl-coated wire.

- Note that this is NOT an electrical safety ground (earth).

## **D** Power cord receptacle

After all other connections have been made, insert the supplied AC power cord into this receptacle, then connect the other end of the power cord into the wall socket.

- Ensure that your AC voltage corresponds to the voltage marked on the rear panel of the unit. Consult a qualified electrician if you are in doubt.
- Use only the supplied Esoteric power cord. Use of other power cords may result in fire or electric shock. Unplug the power cord when you are not going to use the unit for an extended period of time.



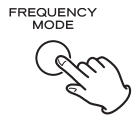
## 1 Turn the G-03X on.



The power indicator on the display lights up.

- When the G-03X is turned on, the process of pre-heating the oscillator to its operating temperature gets started. It takes a few minutes before the oscillator is ready for operation. During the process of pre-heating, "44.1 kHz" or "48 kHz" indicator blinks on the display.

## 2 Select the appropriate frequency mode using the FREQUENCY MODE button.



### 44.1kHz:

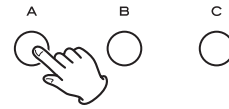
Select this for playback of CD, Super Audio CD, etc.

### 48kHz:

Select this for playback of DVD, DAT, etc.

- When you intend to select 100 kHz in step 3, either 44.1 kHz or 48 kHz may be selected.

## 3 Select the frequency of the word clock for each line by pressing the A, B or C button.



### When the connected device is compatible with a universal clock (100 kHz):

"100 kHz" is recommended.

Although the CD and Super Audio CD frequencies are multiples of 44.1 kHz while the DVD frequency is a multiple of 48 kHz, the universal clock (100 kHz) enables compatibility with any disc. The lack of the need to switch the frequency mode for each disc results in considerable convenience.

- Please refer to the manual or other references in advance to determine whether or not the connected device is compatible with a universal clock (100 kHz). The following models are not compatible with a universal clock:  
P-0, P-0s, P-70, P-70 (upgraded), D-70, D-70 (upgraded)

### When the connected device is NOT compatible with a universal clock (100 kHz):

Set the frequency as high as the connected units will allow for synchronization.

#### Note:

Select 44.1 kHz for the P-0 or P-0s.  
Select 88.2 kHz for the P-70.

## 4 Set the connected units to the slave mode (word synchronization input mode).

Read the instructions of each component to turn Word Sync on.

### Example:

D-01: select "Rb IN" using the WORD button.

D-70 upgraded: select "WORD+RAM" using the CLOCK MODE switch (front panel), then select "IN M1" using the remote control unit.

P-01: select "Rb IN" using the WORD button.

P-70/P-70 upgraded: turn ON the WORD SYNC switch (front panel), then set the PLL filter switch (back panel) to "MODE2".

X-01: select "Word M1 ON" using the CLOCK MODE button.

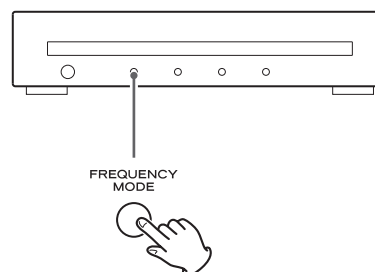
**NOTE:**

If you connect this unit to other manufacturers units, be sure to read the manuals of those devices to confirm the frequency range of synchronization.

Dual AES connection will require you to set the clock frequency at one half of the audio signal frequency.

- Settings are stored even when power is turned off and the unit is unplugged.
- When not in use, turn the G-03X off.
- Once settings have been made, those settings can be used simply by turning on the power the next time the unit is used. Switch the frequency mode using the FREQUENCY MODE button depending on the disc to be played or device.
- Although the CD and Super Audio CD frequencies are multiples of 44.1 kHz while the DVD frequency is a multiple of 48 kHz, the universal clock enables compatibility with any disc. The lack of the need to switch the frequency mode for each disc results in considerable convenience.

## Dimmer



Hold down the FREQUENCY MODE button for more than 2 seconds to dim the display on the front panel to suit the environment in which you listen to music.

Full brightness (normal mode)



Medium brightness



Minimum brightness



All the illuminations are turned off except the power indicator.

- This setting is stored even when power is turned off and the unit is unplugged.
- When you turn on the power or you operate other buttons, the display temporarily lights at full brightness. It is dimmed after the clock signal is stabilized (after "44.1 kHz" or "48 kHz" indicator stops blinking and lights steadily).

## Troubleshooting

In case you experience any problem with this unit, please take the time to look through this chart and see if you can solve the problem yourself before you call your dealer.

### No power

- ➔ Check the connection to the AC power supply. Check and make sure the AC source is not a switched outlet and that, if it is, the switch is turned on. Make sure there is power to the AC outlet by plugging another item such as a lamp or fan.
- ➔ Turn on the POWER switch.

### Not synchronized

- ➔ Check to see if the current word clock output is supported by the connected players. If necessary, select a word clock frequency that is appropriate for the individual players. There are occasions where the word clock available for synchronization varies depending on the connection and settings of the individual players. For details, consult the manual for each player.

### Desired frequency not selectable with A, B, and C buttons

- ➔ Select the proper fundamental frequency in FREQUENCY MODE before operating the buttons.

**If normal operation cannot be obtained, unplug the power cord from the outlet and plug it again. This resets the internal micro-computer which can be disturbed during electrical storms, power interruptions, et cetera.**

## Specifications

### Clock outputs

44.1 kHz lines . . . . . 44.1 kHz, 88.2 kHz, 176.4 kHz  
48 kHz lines . . . . . 48 kHz, 96 kHz, 192 kHz  
Universal clock . . . . . 100 kHz

Terminals . . . . . BNC coaxial  
Output . . . . . rectangular wave (TTL level/75Ω)

Accuracy . . . . . Under  $\pm 0.1$  ppm (factory setting, ppm:  $10^{-6}$ )

### Stabilized time of the output clock

When the G-03X is turned on. . . . . About 2 minutes

When the FREQUENCY MODE button is pressed  
Less than 30 seconds

### Frequency input

Frequency . . . . . 10 MHz (under  $\pm 10$  ppm)  
Terminal . . . . . BNC coaxial  
Input level . . . . . Sine wave: 0.5 - 1.0 Vrms/50Ω  
Rectangular wave: 1.5 - 3.0 Vpp/50Ω

### General

Power supply  
Europe model . . . . . AC 230 V, 50 Hz  
U.S.A./Canada model . . . . . AC 120 V, 60 Hz  
Korea model . . . . . AC 220 V, 60 Hz

Power consumption . . . . . 12 W (maximum), 7 W (nominal)

Weight . . . . . 9.1 kg (20 1/16 lbs)  
External dimensions (W x H x D) . . . . . 442 x 97.5 x 353 mm  
(17 3/8" x 3 7/8" x 13 7/8")

Operating temperature . . . . . +5°C - +35°C

### Accessories

Power cord x 1  
Felt x 3  
Warranty card x 1  
Owner's manual x 1

- Design and specifications are subject to change without notice.
- Weight and dimensions are approximate.
- Illustrations may differ slightly from production models.



# ESOTERIC

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This appliance has a serial number located on the rear panel. Please record the model number and serial number and retain them for your records.

Model number \_\_\_\_\_ Serial number \_\_\_\_\_

0407·MA-1206A