

DRAWMER

M-Clock Lite



DMS-4

AES GRADE 1 MASTER CLOCK

CONTENTS

Warranty	2
Safety Consideration	3
Radio Frequencies Statement	3
<i>Chapter 1 - Introduction</i>	
Introduction	4
Installation	5
Audio Connections & Guide	5
<i>Chapter 2 - General Information</i>	
If a fault develops	6
Contacting Drawmer	6
Specification	6
Block Diagram	7



COPYRIGHT

This manual is copyrighted © 2008 by Drawmer Electronics Ltd. With all rights reserved. Under copyright laws, no part of this publication may be reproduced, transmitted, stored in a retrieval system or translated into any language in any form by any means, mechanical, optical, electronic, recording, or otherwise, without the written permission of Drawmer Electronics Ltd.

ONE YEAR LIMITED WARRANTY

Drawmer Electronics Ltd., warrants the Drawmer DMS-4 M-Clock Lite, AES Grade 1 Master Clock to conform substantially to the specifications of this manual for a period of one year from the original date of purchase when used in accordance with the specifications detailed in this manual. In the case of a valid warranty claim, your sole and exclusive remedy and Drawmer's entire liability under any theory of liability will be to, at Drawmer's discretion, repair or replace the product without charge, or, if not possible, to refund the purchase price to you. This warranty is not transferable. It applies only to the original purchaser of the product.

For warranty service please call your local Drawmer dealer. Alternatively call Drawmer Electronics Ltd. at +44 (0)1709 527574. Then ship the defective product, with transportation and insurance charges pre-paid, to Drawmer Electronics Ltd., Coleman Street, Parkgate, Rotherham, S62 6EL UK. Write the RA number in large letters in a prominent position on the shipping box. Enclose your name, address, telephone number, copy of the original sales invoice and a detailed description of the problem. Drawmer will not accept responsibility for loss or damage during transit.

This warranty is void if the product has been damaged by misuse, modification or unauthorised repair.

THIS WARRANTY IS IN LIEU OF ALL WARRANTIES, WHETHER ORAL OR WRITTEN, EXPRESSED, IMPLIED OR STATUTORY. DRAWMER MAKES NO OTHER WARRANTY EITHER EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT. PURCHASER'S SOLE AND EXCLUSIVE REMEDY UNDER THIS WARRANTY SHALL BE REPAIR OR REPLACEMENT AS SPECIFIED HEREIN.

IN NO EVENT WILL DRAWMER ELECTRONICS LTD. BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY DEFECT IN THE PRODUCT, INCLUDING LOST PROFITS, DAMAGE TO PROPERTY, AND, TO THE EXTENT PERMITTED BY LAW, DAMAGE FOR PERSONAL INJURY, EVEN IF DRAWMER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Some states and specific countries do not allow the exclusion of implied warranties or limitations on how long an implied warranty may last, so the above limitations may not apply to you. This warranty gives you specific legal rights. You may have additional rights that vary from state to state, and country to country.

In the interests of product development, Drawmer reserve the right to modify or improve specifications of this product at any time, without prior notice.

DRAWMER *M-Clock Lite*

DMS-4 AES GRADE 1 MASTER CLOCK

SAFETY CONSIDERATIONS

CAUTION - MAINS FUSE

TO REDUCE THE RISK OF FIRE
REPLACE THE MAINS FUSE ONLY WITH
A FUSE THAT **CONFORMS TO IEC127-2**.
250 VOLT WORKING, TIME DELAY TYPE
AND BODY SIZE OF 20mm x 5mm.
THE MAINS INPUT FUSE MUST
BE RATED AT T315mA.

CAUTION - MAINS CABLE

DO NOT ATTEMPT TO CHANGE
OR TAMPER WITH THE
SUPPLIED MAINS CABLE.

CAUTION - SERVICING

DO NOT PERFORM ANY SERVICING.
REFER ALL SERVICING TO QUALIFIED
SERVICE PERSONNEL.

WARNING

TO REDUCE THE RISK OF FIRE OR
ELECTRIC SHOCK DO NOT EXPOSE
THIS EQUIPMENT TO RAIN OR MOISTURE.



CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN



For the USA

FEDERAL COMMUNICATIONS COMMISSION RADIO FREQUENCY INTERFERENCE STATEMENT

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 interference to radio or television reception, which can be determined by turning the equipment off and on, then the user is encouraged to try to correct the interference by one or more of the following measures:

Re-orient or relocate the receiving antenna.

Increase the separation between the equipment and the 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.

Unauthorised changes or modification to this system can void the users' authority to operate this equipment. This equipment requires shielded interface cables in order to meet FCC class B limit.

For Canada

CLASS B NOTICE

This digital apparatus does not exceed the Class B limits for radio noise emissions set out in the Radio Interference Regulations of the Canadian Department of Communications.

CLASSE B AVIS

Cet appareil numérique ne dépasse pas les limites de la classe B au niveau des émissions de bruits radioélectriques fixés dans le Règlement des signaux parasites par le ministère Canadien des Communications.

DRAWMER DMS-4 M-Clock Lite AES GRADE 1 MASTER CLOCK

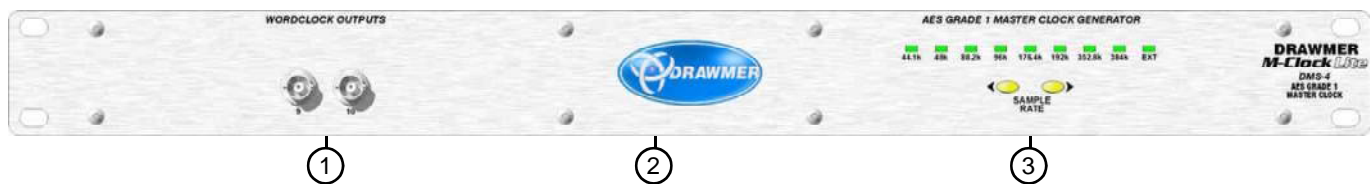
INTRODUCTION

It is now widely accepted that one of the essential requirements for high quality digital recording is a first class, high stability master clock generator. These can be complicated devices with many added features, which although useful, may be surplus to requirements. The aim of M-Clock Lite is to provide a simple, high quality clock generator, which is forward compatible with high speed clocks predicted for the future. M-Clock Lite features an AES Grade 1 master clock generator, meaning that the generated clock has a long term frequency accuracy of +/- 1ppm.



Features:

- M-Clock Lite offers clock rates of 44.1, 48, 88.2, 96, 176.4, 192, 352.8 and 384kHz at extremely low jitter.
- An external clock input allows the user to select an alternative clock source without having to re-route clock cables.
- 10 Outputs are provided, 8 at the rear and 2 for easy access on the front panel.



① **Wordclock Outputs:**

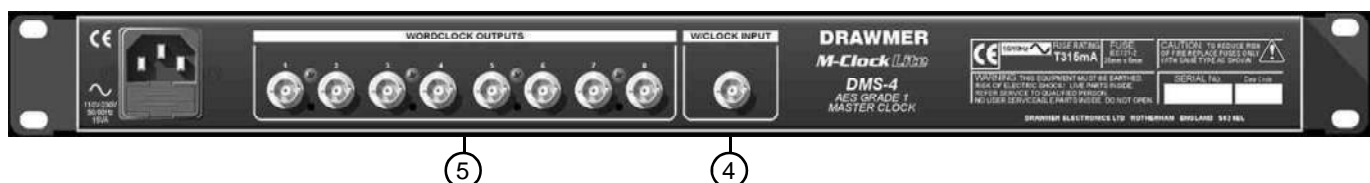
Two wordclock outputs conveniently located on the front panel.

③ **Output Sample Rate:**

Two buttons toggle through the **wordclock output sample rates**, setting the rate for the eight rear panel outputs ⑤ and the two front panel outputs ① from **44.1kHz** to **384kHz**. An **EXT**ernal wordclock input can also be selected that sets the clock output rate to match that of the incoming external clock ④.

② **On Led:**

A power LED notifies that the unit is on.



④ **Wordclock Inputs:**

Sets the output sample rate when the **Output Sample Rate** control ③ is set to **EXT**.

⑤ **Wordclock Outputs:**

In addition to the two front panel wordclock outputs eight more are found on the rear.

INSTALLATION

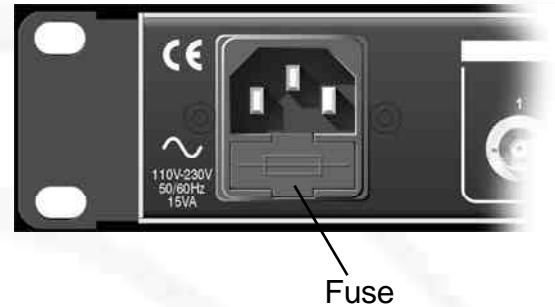
The DMS-4 is designed for standard 19" rack mounting and occupies 1U of rack space. Avoid mounting the unit directly above power amplifiers or power supplies that radiate significant amounts of heat.

If the unit is to be used in a mobile situation, it is strongly recommended that the rear of the unit is supported in the carrying rack to avoid bending the front panel rack mounting 'ears'.

Use fibre or plastic washers to prevent the front panel becoming marked by the mounting bolts.

The unit will be supplied with a power cable suitable for domestic power outlets in your country. For your own safety it is important that you use this cable. The unit should always be connected to the mains supply earth using this cable. Powered by a universal switch mode power supply, the DMS-4 M-Clock Lite operates from mains voltages between 85 to 250v, eliminating the need to make any changes when touring and allowing the unit to remain fully operational during large fluctuations in the mains power supply.

The DMS-4 is fitted with a mains fuse that conforms to the IEC127-2 standard and is rated at T315mA. If the fuse blows it must be replaced with one of identical type and value. To do so remove the mains cable from the IEC connector and open the drawer that is located just below, replace the fuse, close the drawer and re-attach the mains cable.

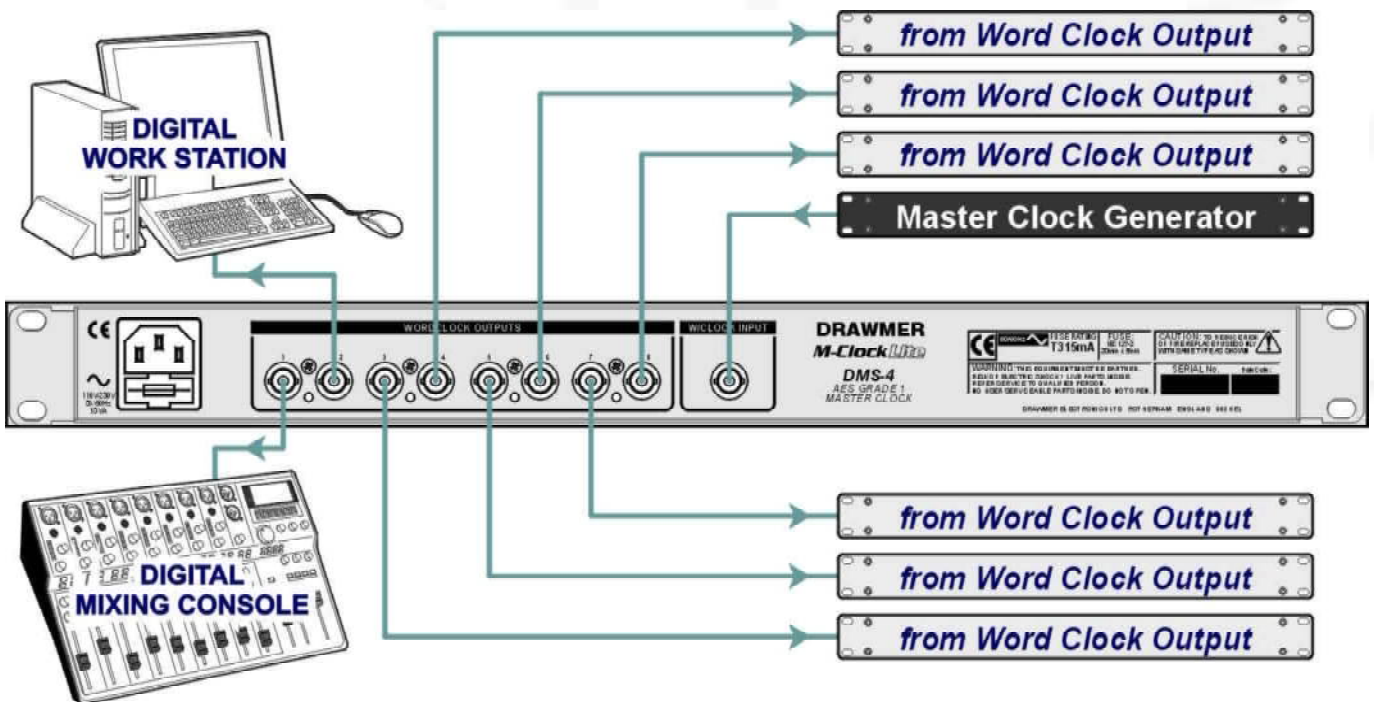


AUDIO CONNECTIONS

Word Clock

Use only good quality 75Ω digital or video coax (not aerial download) cable for the word-clock signals, terminated with the correct type of 75Ω BNC connectors - inferior cables will introduce jitter and will completely undermine the performance benefits which might be achieved by using a master clock in the first place!

SIMPLE WORDCLOCK DISTRIBUTION SETUP



M-CLOCK Lite DMS-4 GENERAL INFORMATION

IF A FAULT DEVELOPS

For warranty service please call Drawmer Electronics Ltd. or their nearest authorised service facility, giving full details of the difficulty.

A list of all main dealers can be found on the Drawmer webpages.

On receipt of this information, service or shipping instructions will be forwarded to you.

No equipment should be returned under the warranty without prior consent from Drawmer or their authorised representative.

For service claims under the warranty agreement a service Returns Authorisation (RA) number will be issued. Write this RA number in large letters in a prominent position on the shipping box. Enclose your name, address, telephone number, copy of the original sales invoice and a detailed description of the problem.

Authorised returns should be prepaid and must be insured.

All Drawmer products are packaged in specially designed containers for protection. If the unit is to be returned, the original container must be used. If this container is not available, then the equipment should be packaged in substantial shock-proof material, capable of withstanding the handling for the transit.

CONTACTING DRAWMER

Drawmer Electronics Ltd., will be pleased to answer all application questions to enhance your usage of this equipment. Please address correspondence to:

Drawmer (Technical Help line)
 Coleman Street
 Parkgate
 Rotherham
 S62 6EL
 UK

Alternatively contact us by E-mail on :

tech@drawmer.com

Further information on all Drawmer dealers, Authorised service departments and other contact information can be obtained from our web pages on:

<http://www.drawmer.com>

SPECIFICATION

Internal Clock Generator

2 x Temperature Compensated Xtal Oscillators (TCXOs)

AES11 GRADE 1 Stability, Tolerance +/-1ppm (0-60 Celcius), <<+/-1ppm (15-30 Celcius)

Phase noise -130 dBc/Hz @ 1kHz

@ 24.5760 MHz to give Fs 48 kHz, 96 kHz, 192kHz & 384 kHz

@ 22.5792 MHz to give Fs 44.1 kHz, 88.2 kHz, 176.4 kHz & 352.8 kHz

Word Clock Inputs

1 x BNC (Rear Panel)

Input Impedance 75 Ohms

Word Clock Outputs

8 x BNC (Rear Panel)
 2 x BNC (Front Panel)

Output impedance 33 ohms

All outputs selectable between 44.1, 48, 88.2, 96, 176.4, 192, 352.8 and 384kHz

General

Power Supply: Internal, Universal Input, 15 W

Fuse Rating T315mA for All voltages.
 CONFORMING TO: IEC127-2

Fuse Type 20mm x 5mm, Class 3 Slow - Blow
 250Volt working

Dimensions: 1u, 19" Rack Mount,
 482mm(W) x 44mm(H) x 145mm(D)

Weight 1.755 kg

BLOCK DIAGRAM

