

DRAWMER

D-Clock-R



DMS-6

DUAL REDUNDANT WORD CLOCK DISTRIBUTION AMPLIFIER

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ONE YEAR LIMITED WARRANTY

Drawmer Electronics Ltd., warrants the Drawmer DMS-6 D-Clock-R Dual Redundant Word-Clock Distribution Amplifier 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 you can call Drawmer Electronics Ltd. directly 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.

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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 *D-Clock-R*

DMS-6

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SAFETY CONSIDERATIONS

CAUTION - MAINS FUSE

TO REDUCE THE RISK OF FIRE
REPLACE THE MAINS FUSES 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 T500mA.

CAUTION - MAINS CABLES

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

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.



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.

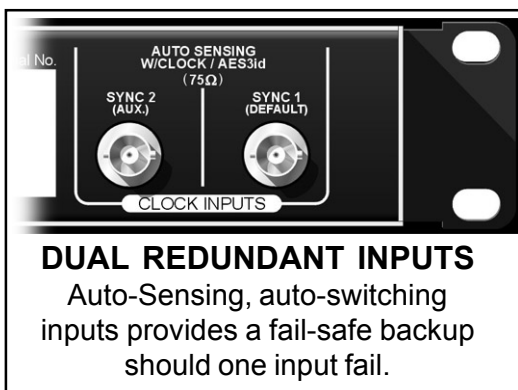
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D-Clock-R DMS-6

DUAL REDUNDANT WORD CLOCK DISTRIBUTION AMPLIFIER

INTRODUCTION

Expanding on the renowned Drawmer D-Clock in providing word clock measurement and distribution to digital audio environments the D-Clock-R has been designed with not only studio recording in mind but also the live and broadcast environment, where reliability and stability are absolutely imperative. Designed for fail-safe operation the D-Clock-R as been developed with dual redundancy for both the power supplies and also the word clock inputs, ensuring that the show will go on regardless of technical difficulties.



The Drawmer D-Clock-R is an auto-sensing dual redundancy input, sixteen output word clock distributor with a 16 character blue LCD display providing a high accuracy reference measurement of the incoming sample rate. It uses a high stability TCXO (temperature compensated xtal oscillator) along with a microcontroller to measure the incoming sample rate to an accuracy of 2ppm and displays the information in three different formats, actual frequency (to one decimal place), nominal frequency +/- ppm error, or nominal frequency plus percentage of pull up or pull down.

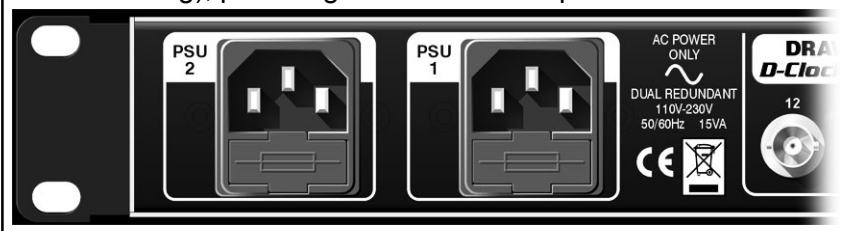
The D-Clock-R has two BNC inputs, a default and auxiliary, which is automatically selected depending on the strength and quality of the signal, and capable of locking on to both word clock (upto 768KHz) and AES-3id (upto 192kHz), it has twelve BNC clock outputs situated on the rear panel with a further four BNC clock outputs on the front panel for quick patching to other digital devices.



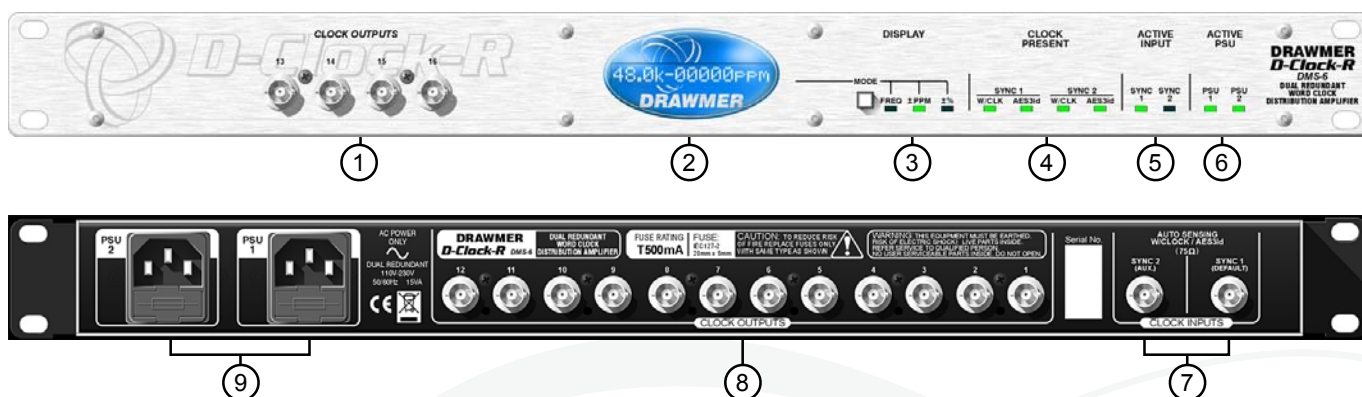
- Dual Redundancy power supply via 2 x Universal voltage filtered mains power inlets for continuous operation & reliability.
- Dual Redundant input / 16 output Clock Measurement and Distribution Amplifier
- Inputs: 2 x Auto-Sensing WordClock / AES3id BNC dual redundant inputs (@75 Ohms impedance) - should one fail input is automatically switched to the alternative source.
- Outputs: 16 BNC clock outputs - 33 Ohms impedance - 4 on the front panel for convenience.
- 3 sample rate measurement LCD modes accurate to 2ppm.

TWO INDEPENDENT POWER SUPPLIES PROVIDE DUAL REDUNDANCY

Can fully operate on a single supply or both (with power load balancing), providing a fail-safe backup should one fail.



FEATURES OVERLAY



- ① **4x Front Panel Outputs:**
4x **BNC** output connectors mounted on the front for ease of connectivity.
- ② **Display:**
Blue/White liquid crystal display with three switchable modes of operation.
- ③ **Display Mode:**
Switch to control the mode of display ② between Frequency, PPM and %.
- ④ **Clock Present LED's:**
Show the presence of Word Clock and AES3id for both SYNC1 and SYNC2 inputs ⑦
- ⑤ **Active Input LED's:**
Two led's showing which of the two word clock inputs ⑦ has been automatically selected.
- ⑥ **Active PSU LED's:**
Two led's showing which of the two PSU inputs ⑨ is operational.
- ⑦ **2x Auto Sensing Word-Clock/ AES3id Inputs:**
2 Dual Redundant BNC Word Clock / AES3id inputs can be connected simultaneously to provide a clock and also a backup, should one fail. The input selection is carried out automatically by the DMS-6, with SYNC 1 being default and SYNC 2 auxiliary.
- ⑧ **12x BNC Clock Outputs:**
Buffered **BNC** wordclock outputs with 33 Ohms impedance.
- ⑨ **Dual Redundant PSU Inputs:**
2 x identical power supplies can be used either simultaneously or independently, should power to one fail.

INSTALLATION

The DMS-6 D-Clock-R 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

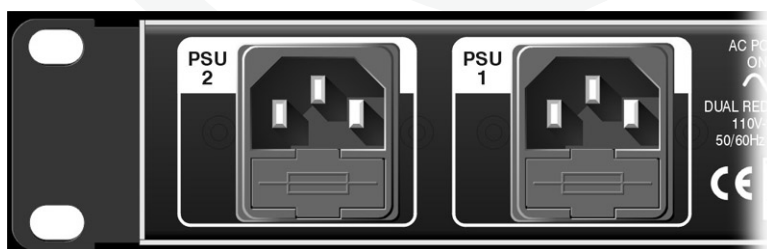
recommended that the rear of the unit is supported in the carrying rack to avoid bending the front panel rack mounting 'ears'. Use fibre or plastic washers to prevent the front panel becoming marked by the mounting bolts. Always connect the mains earth to the unit.

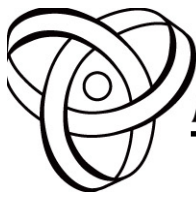
POWER CONNECTION

The DMS-6 D-Clock-R is fitted with two identical and independent power supply units, providing Dual Redundancy. Either can be used solely to supply power to the unit, but in situations where it is critical that power must be maintained mains power should be supplied to both units. With both power supplies receiving power the units will share the load, however, should either fail, the other is capable of fully driving the unit.

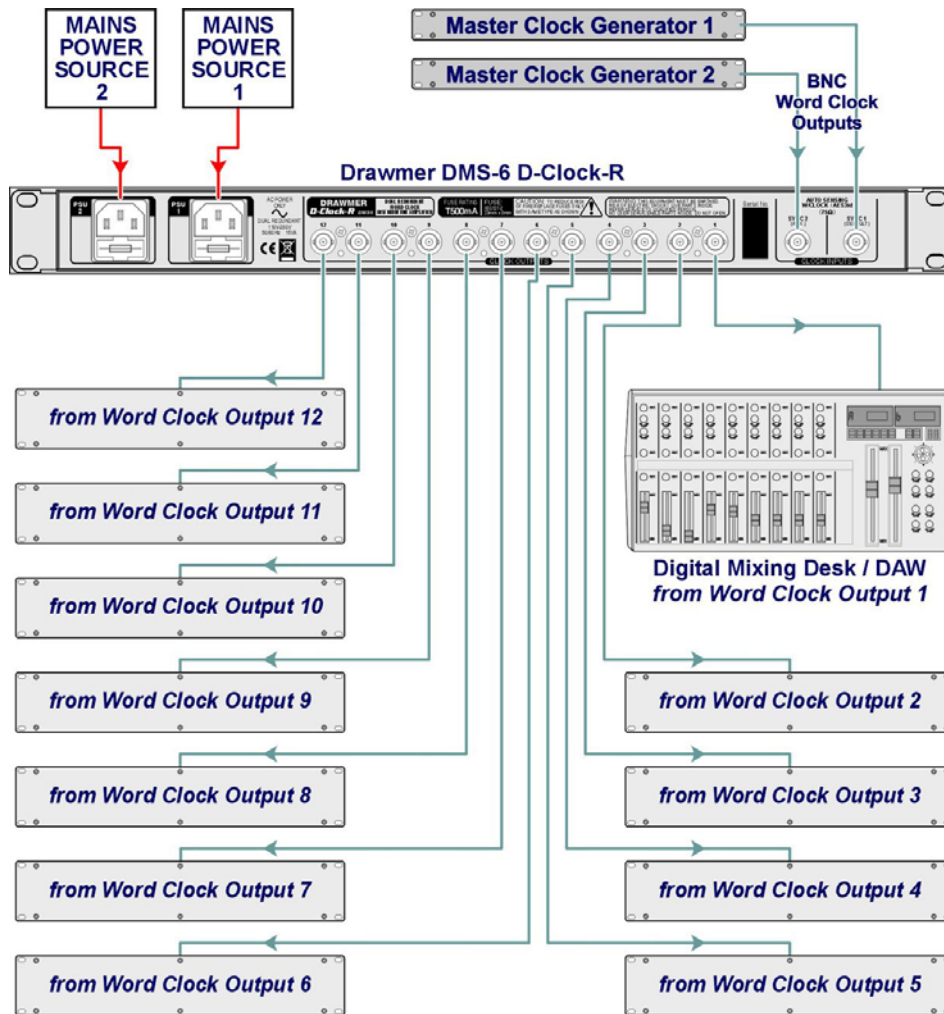
Powered by dual universal switch mode power supplies, the DMS-6 D-Clock-R operates from mains voltages between 85 - 250v, eliminating the need to make any changes when touring and allowing the unit to remain fully operational during large fluctuations in the mains power supply.

The unit will be supplied with two power cables suitable for domestic power outlets in your country. For your own safety it is important that you use these cables. The unit should always be connected to the mains supply earth using at least one of these cables.





SIMPLE CONNECTION GUIDE



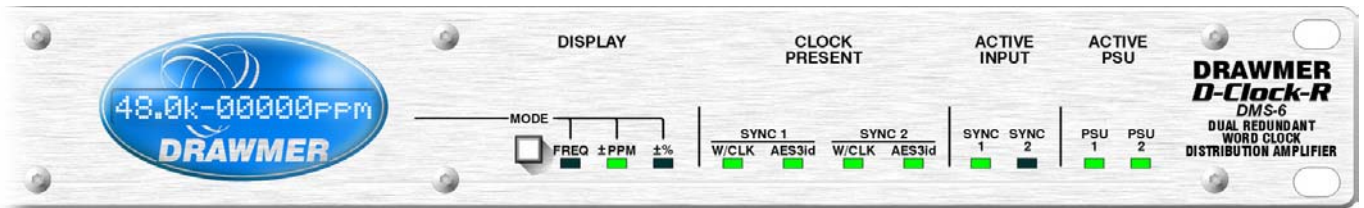
AUDIO CONNECTIONS

Word Clock / AES-3id

Use only good quality 75ohm digital or video coax (not aerial downlead) 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!

AES3id calls for unbalanced 75 ohm connections, which make its hardware requirements the same as S/PDIF connections, though AES3id is implemented with BNC connections instead of RCA type connections. While AES3 & AES3id have different hardware transmission methods the data contained within the transmission is identical.

CONTROL DESCRIPTION



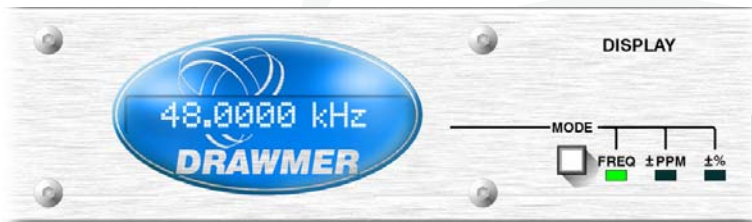
DISPLAY

A Blue/White LCD display with three switchable modes of operation: **FREQ**, **±PPM** and **±%**. The mode that is displayed during power down is saved for the next session. The display accuracy is 2ppm at all sample rates up to 768kHz, or 0.1Hz increments @ 48kHz sample rate

MODE

A switch controls the mode of display enabling you to read the incoming sample rate in your preferred manner. Pressing the switch toggles through the three modes of **FREQ**, **±PPM** and **±%**, with led indication.

FREQ



Displays the actual frequency to four decimal places upto >768kHz.

±PPM



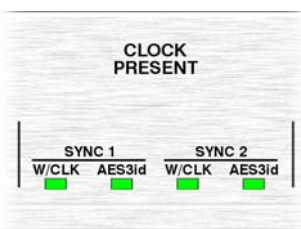
Displays the nominal sample rate with +/- ppm (part per million) error indication for 32, 44.1, 48, 96 & 192KHz

±%



Displays the nominal sample rate with percentage pull up/down indication for 32, 44.1, 48, 96 & 192KHz

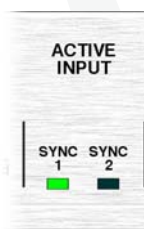
CLOCK PRESENT



The LED's indicate the status of the input sources for both Sync1 & Sync2 in word clock & AES-3id.

When a led is lit continuously a strong signal is being received by that input source and the D-Clock-R is "locked on". If a led flickers, the signal for that particular input source is weak or unstable - in this case the source of this weak signal should be located and improved.

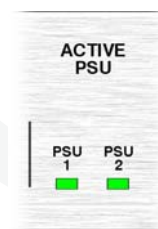
ACTIVE INPUT



The two LED's indicate the input source being used - either Sync1 or Sync2. By default Sync1 would be used, however, should

this signal be weak or missing the D-Clock-R will automatically switch to using Sync2 as the clock input.

ACTIVE PSU



The two LED's indicate the power supply being used - either PSU1 or PSU2. With both LED's lit the power is shared

between the two PSU's. A LED unlit identifies that the PSU is not in use and the source of this problem should be found as soon as it is convenient. The DMS-6 can operate via both or either of the PSU's.

D-Clock-R DMS-6 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 shockproof 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

INPUTS

BNC wordclock input	Dual 75ohm BNC
Sensitivity	Auto selecting

MAIN OUTPUTS

BNC wordclock outputs	16 x simultaneous re-buffered BNC wordclock outputs with 33 ohm output impedance. 4 of which are on the front panel for ease of connectivity.
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DISPLAY

Blue/white LCD display with three switchable modes of operation with mode led indicators for each:

frequency	actual frequency up to >768KHz
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+/- ppm	nominal sample rate with +/- ppm error indication for 32,44.1,48,96 & 192KHz
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+/-%	Nominal sample rate with percent pull up/down indication for 32,44.1,48,96 & 192KHz
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Accuracy	2ppm at all sample rates up to 768KHz 0.1 Hz increments @ 48KHz sample rate
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INDICATORS

Wordclock/AES-3id clock present led indicators
Active input led indicators
PSU active led indicators

GENERAL

Power Supply:	2 x Internal identical, Universal Input, 10 W for Dual Redundancy
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Power Requirement	<6W
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Fuse Rating	T500mA for All voltages. CONFORMING TO: IEC127-2
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Fuse Type	20mm x 5mm, Class 3 Slow - Blow. 250Volt working
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Dimensions:	1u, 19" Rack Mount, Depth 145 mm
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Weight	1.7 kg
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BLOCK DIAGRAM

