



## Sheer Acoustic Equaliser Direct Mini: EDM-1

**Multi-function Pre-amplifier with EQ, Anti-Feedback & Direct Injection functions for superior Acoustic Amplification.**

Designed in UK

### INSTRUCTION MANUAL



EDM-1 provides a beautifully voiced and practical solution to the diverse and critical needs for high quality acoustic musical instrument amplification.

Suitable for stage and other signal processing.

EDM-1 offers a huge range of gain to Interface with Mixers and other sound processors, highly effective EQ and other highly versatile facilities to get the best possible sound from amplified acoustic stringed instruments with low noise levels.

**From an exceptionally compact box, the EDM-1 can take on a unique range of functions and qualities which include:**

- Refined Class "A" inputs and Pro Audio IC components.
- Voiced for clarity, warmth and low noise.
- Effective 3 Band EQ for problem solving and creativity.
- Easily read Pro Audio design panel layout.
- Versatile inputs, switchable to optimise a comprehensive range of passive and active pickups offering 3 way Impedance switching.
- Tuneable "Range" control for extended range of attack on unwanted boom, body handling noise and feedback to amplify a clearer, more musical tone of instrument.
- Phantom Powering of all Pickups via Ch.1 Jack IN, Phantom to "Ring" or "Tip".
- XLR Adapter included - Converts OUT Jack to XLR Balanced DI Out.
- Hum busted via Earth Lift switch.
- Powered via 9v PP3 battery included, Phantom Power from Mixers or optional Power Supply (Extends Headroom).
- Mounting via rubber feet or belt clip supplied or by Mic Stand.
- Sturdy steel housing with quality pots and long life sockets.

Congratulations on your astute purchase.

**Please read this comprehensive manual carefully before plugging in the EDM-1.**

Text is also available on website below:  
[www.headwaymusicaudio.com](http://www.headwaymusicaudio.com)

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**HEADWAY PRODUCTS: Policy of continual improvement**

# HEADWAY EDM-1 Top Panel

## 3 BAND EQ

Treble @ 10 kHz +/- 12dB  
 Mid @ 590 Hz +/- 13dB

Bass @ 120 Hz +/- 12dB  
 As Above @ 45Hz +/-

## POWER ON/MUTE

Green LED Indicates Signal LIVE to Output.  
 Red LED Indicates MUTE.



## RANGE

### (HI-PASS FILTER)

Select Instrument/  
 Frequency to Roll Off  
 Low-Mid. Defeats Feed-  
 back, Boom etc.

## LOW BATTERY LED

Lights PURPLE when  
 Batteries are within  
 hours of expiry.

## MASTER

Sets Output Level  
 to LINE OUT.

## EARTH/GROUND LIFT

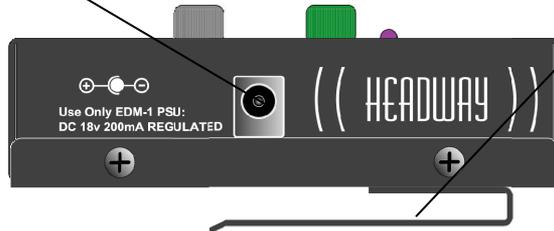
Prevents Hum Loop by  
 disconnecting XLR  
 pin 1 from EDM-1 OUT.  
 \* Only Applies with XLR  
 Adaptor in Output  
 Socket.  
 \*\* When Earth Lift is  
 applied EDM-1 cannot  
 be powered by  
 Phantom Power (48v)  
 from mixer.

## INPUT IMPEDANCE

+HI & HI - Passive Pickups.  
 Active/LOW for Powered or  
 Low Impedance Pickups.

## EDM-1 RH Side Panel

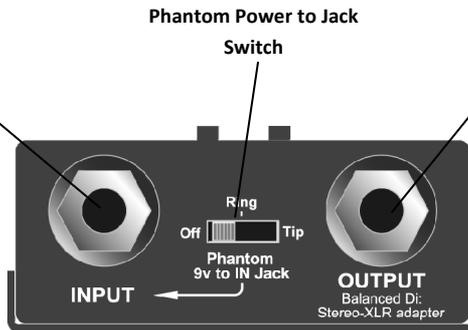
**EXT. POWER IN**  
18v AC/DC Adapter  
Input Connector.  
Offers improved  
Headroom &  
Performance.



**BELT CLIP OPTION**

## EDM-1 Front Panel

**JACK IN**  
9v Phantom Power  
Option to Ring or Tip

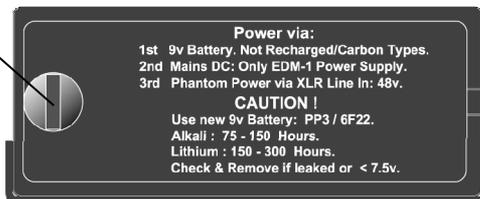


**Phantom Power to Jack  
Switch**

**LINE OUT**  
Insert Jack Plug to Switch ON  
With XLR Stereo Jack  
Adaptor Offers Balanced  
DI Out & Accepts  
48v Phantom Power  
From Mixer to  
Power EDM-1 with improved  
Headroom & Performance.

**BATTERY PANEL**  
With Captive Screw

## EDM-1 Rear Panel



## EDM-1 STEREO JACK TO XLR ADAPTER



**XLR ADAPTER**  
(As Supplied)  
Converts Mono Jack  
Output to  
Balanced DI OUT  
with Earth Lift. Will  
accept 48v Phantom  
to Power EDM-1.  
(Earth Lift must be  
OFF).

**Please read all warnings on Headway Sheer Acoustic EDM-1 very carefully:**

## 1 SAFETY PRECAUTIONS & OPERATION

1.1 Important Safeguards to your life and gear to note before use of your EDM-1.

**IMPORTANT:** Make sure that you power only by:

PP3 (9v) battery as included with this unit or:

Phantom Power via XLR-Stereo Jack plug Adapter (supplied with unit) installed in Output Socket and with 48v Phantom from Mixer.

Headway EDM-1 PSU (Optional)

Mains AC-DC Adapter Connector Types available for EDM-1 PSU:

UK = United Kingdom/Eire/Singapore (e.g. EDM-1 PSU UK)

EU = Europe (Continental Mainland)

NA = North America/S. America/Japan

AUS = Australasia/S. Africa.

### 1.1.1 EARTH PROTECTION & GROUNDING

To prevent electric shock, ensure that any Input/Output cables from EDM-1 are connected to amplification or signal processing devices (e.g. mixers, amplifiers & effects units) so that where Mains powered devices with an Earth Connection are used, there is a continuous, unbroken chain of Mains earth connection and where the mains supply at the venue offers a viable Earth or Ground connection.

**DO NOT disconnect any ground/earth wire on any earth connected mains powered devices.**

### 1.1.2 MAINS PROTECTION

Always take care to protect your own life and those of others along with your gear by using RCD Circuit Breakers and AC Mains Surge Protectors at each source of the mains power. Circuit breakers should be tested prior to use.

We recommend that you also use Mains Noise Filters, Switch Off Power Supply Unit and other connected mains powered devices and unplug when EDM-1 unit is not in use.

### 1.1.3 SHOCKS WARNING

Stop immediately the use of any sound equipment when even minor electric shocks are detected and seek a practical consultation from a qualified professional electronics repair technician.

### 1.1.4 PREVENTION OF SHOCKS & DAMAGE

DO NOT expose the EDM-1, its optional Power Supply Unit or attached cables to any liquids such as rain/spilt drinks. If your EDM-1 should become in contact with any liquids, switch off at mains power socket, disconnect and dry hands before re-use.

### 1.1.5 VENUE WARING

Avoid venues with suspect electrical wiring, damp or wet wires & contacts or where sparks are visible.

### 1.1.6 MICROPHONE SAFETY

Where microphones are used into EDM-1 or associated PA system, try to use Government Type approved & Licensed Radio Microphones and Transmitters.

### 1.1.7 CABLE & AMP PLACEMENT WARNING

Always place your EDM-1 and associated cables where they are visible and cannot cause an accident such as on a Mic Stand or Belt Clip.

DO NOT BLOCK EXITS.

Switch off Power Supply if NOT in use for > 1 hour.

To minimise plug in noises, first engage Mute switch, plug Output cable into EDM-1 then plug Output cable into amp or mixer etc. Next, plug cable into Instrument followed by Input cable into EDM-1. Switch Mute to LIVE.

Switchcraft, Neutrik, Deltron & GH offer quieter switching Jack Plugs.

## 1.2 SERVICING, REPAIR & RETURNS:

All Headway servicing and repairs should be carried out by Headway Music Audio Ltd. or its approved agents where applicable.

All returns must be sent pre-paid and should be insured against loss.

Headway Music Audio Ltd. will NOT be held responsible for losses in transit or for duty and taxes incurred, e.g. where customs documentation is completed incorrectly.

Customs Declaration forms on returned products sent internationally, should be completed and could read, for example:

***"Electrical Musical Instrument Amplifier Unit returned to UK country of landed origin for Service/Repair.***

***Not for Re-sale. Value for Customs = \$ 0.00. Customs Code: 8518.10.40 . Unit will be returned to sender."***

See: Transport 1.8

### **If returning product for repair/service you must include:**

Your full contact details including name, phone number, full mailing address and email address. A full description of any problems.

If claiming under Guarantee/Warranty you must also include:

Proof of purchase clearly indicating date, business name and address of dealers who sold the product.

DO NOT DISSEMBLE ANY PARTS OF YOUR EDM-1 yourself since there are no user serviceable or repairable parts. Any attempt to do so without prior permission would negate the guarantee.

### 1.3 CLEANING the EDM-1

Ensure EDM-1 is UNPLUGGED before cleaning with a moist cloth. Do NOT allow moisture to enter and do NOT use chemical or abrasive cleaning products.

### 1.4 PRODUCT LIABILITY

Headway Music Audio Ltd. cannot be held responsible for damage to its products caused by the subjection to unreasonably high or low temperatures or due to wet conditions or for abuse or mishandling. Headway Music Audio Ltd. retains the right to make such determination according to its own inspection.

### 1.5 CONSEQUENTIAL LOSS

Headway Music Audio Ltd. will not be responsible for consequential loss or damages such as due to the use or misuse of its products, accident, neglect, technical modifications or unreasonable expectations.

Headway Music Audio Ltd. will not be held responsible for the application of Phantom Power where some other electronic device may have been damaged. Headway Music Audio Ltd. retains the right to make all such determinations from its own inspection.

### 1.6 PERSONAL INJURIES

Headway Music Audio Ltd. cannot be held responsible for personal injuries or damages related to its products such as those caused by heat, fire, obstruction, modifications or electrical shock where obtained due to a lack of care on the part of the injured party or due to that persons ignorance of the instruction manual or due to that persons ignorance of best practices in the use of mains powered facilities. Headway Music Audio Ltd. retains the right to make any such determinations according to its own assessment.

### 1.7 WARRANTY/GUARANTEE TERMS

EDM-1 guarantee is valid for up to but no longer than 12 months from the date of purchase but valid only after the guarantee registration has been made online at [www.headwaymusicaudio.com](http://www.headwaymusicaudio.com).

All guarantee issues will be subject to assessment by Headway and appointed service agents.

Headway Music Audio Ltd. does NOT recognise or participate within guarantees/warranties offered by third party companies such as retailers and dealers.

#### WHAT IS COVERED BY HEADWAY MUSIC AUDIO LTD.

The labour and parts required for the actively functioning of all aspects of the amplifier. This guarantee is subject to:

Full completion and receipt by Headway Music Audio Ltd. of online guarantee form within 30 days of purchase, customers retention of proof of purchase indicating date, business name and address of dealers who sold the product.

#### WHAT IS NOT COVERED

Shipping related, handling or customs, tax & duty charges will NOT be covered under this guarantee. See 1.18 also.

Physical damage and cosmetic blemishes.

Electrical, electronic or audio problems will NOT be covered under this guarantee if caused by electronic or electrical misuse or general vandalism!

Damage caused by insufficient care in handling and/or inadequate transportation.

Non - registered guarantees, partly completed registrations, expired guarantee periods or 3<sup>rd</sup> party company issue guarantees will NOT qualify for free repair work or free transportation.

#### WHAT IF I HAVE NOT REGISTERED GUARANTEE?

If you have not registered the Guarantee/Warranty within 30 days of purchase you are not covered by the 12 Month Guarantee unless you are the end retail customer and have purchased direct from Headway Music Audio Ltd. If you have not registered it you retain your statutory rights under consumer law of the country in which you purchased it from and your contract would be with the dealer/retailer or shop who sold you it.

**YOU CAN REGISTER IT IN ABOUT 1 MINUTE, SO DO IT NOW  
BEFORE THE 30 DAY PERIOD HAS EXPIRED!**

## 1.8 STORAGE & TRANSPORT ADVICE

Headway Music Audio Ltd. suggest storing & transporting the EDM-1 the original box or inside a polythene bag inside a heavy, double thickness cardboard box in excellent condition. Any container should be padded out in order to prevent the unit from shifting around during transit. Due to experiences on service issues we respectfully suggest NOT using TNT, Yodel or Parcelforce.

**International Shipping with Batteries: Lithium batteries, Re-Chargeables and spent batteries** are now banned from **ALL** International Shipping and could result in a return to sender.

## 2 EDM-1 FEATURES & POWER ON

EDM-1 is powered ON/OFF via plugging into Output jack. This frees IN jack to offer a less noisy connection when plugging IN/OUT.

## 3 INPUT & LEVEL CONTROL

### 3.1 Input, Impedance & Level Control

+HI IMP Ultra High Impedance Input: < 20 Meg Ohms

This jack input is uniquely optimised for ultra high impedance passive, NON-Powered Pickups directly into EDM-1 .

The primary types of pickups include Piezo cable or Co-axial cable pickups (Headway HE4 Passive), or Flexible “Piezo Film” pickups as offered by a number of manufacturers. Most are flexible structure types but some film pickups are encased in rigid metal.

Suitable Jack leads used for this input should have at least 80% screening, preferably braided or at least conductive plastic shielding with extensive lapped screening.

Metal jack covers should always be used with the cable as short as possible, no more than 2m (6') with standard, quality cables (e.g. Klotz or Van Damme), or 3m (9') with special low capacitance cable, e.g. Sommer Cable.

#### 3.1.1 HIGH IMP High Impedance Input: < 5 Meg Ohms

This input is optimised for the commonly available passive under saddle Ceramic Piezo pickups, Contact or Bug pickups including Headway's “The Band”.

The lead lengths for the Hi Imp input setting are best kept as short as reasonably possible with good screening and up to a maximum of 6m (18').

3.1.2 ACTIVE/LOW: Impedance Input < 1 Meg Ohm. This input is optimised for active pickup systems which require power. It is also used for Passive Magnetic pickups but there will be a less bright sound. Input leads carrying active signals are not so sensitive to shielding quality and leads up to 10m (33') in length are fine. Also suits Line Level.

### 3.2 INTERACTIVE 3 BAND EQ SECTION

**ACW = Backing a knob off or turning it anti-clockwise.**

**CW = Turning a knob up or turning it clockwise.**

3 rotary controls with active boost & cut functions including shelving responses at the low and high end. A flat response is achieved when the knobs are set in their central detent positions which should be used as a starting point.

You may use these controls creatively in conjunction with each other remembering that there is a degree of interaction, especially between the 3 bands mainly between adjacent controls.

Typical Instrument EQ requirements:

Steel Strung Acoustic Guitars plus Celtic Bouzouki and Octave Mandolas and Acoustic Bass often require a mid range cut, especially on full chords.

Headway HE4 & Snake3 Fixed EQ pickups will require less EQ applied than most other pickups because they incorporate an active tone section which is set for the instrument type specified.

Nylon Strung Guitars played finger style or Resophonic Guitars played with a slide usually require flat mid range EQ or maybe with a slight boost unless they are played with mainly full chords in which case some mid cut may be preferable.

Violins and Mandolins often require treble cuts.

**BOOST EQ FACILITY:** The EDM-1 offers active boost as well as cut on its EQ controls while some alternatives offer merely passive cut functions on controls. However, boost functions can only work effectively if there is a significant amount of the frequency already there in order to be able to increase it. Also, for critical applications, EQ is generally thought to sound better where cut rather than boosted, however, this is a fine point. Most important of all with EQ is to use your ears!

3.2.1 BASS Control: @ 120Hz +/- 12dB  
As above @ 45 Hz +/- 16 dB

Centred broadly, it allows control of the Bass at the lowest frequency of the audio spectrum and will over-lap a little tonally with Mid control.

Cut BASS ACW to cut body handling noise, boomy sound, externally generated hum, percussive clunks and low end feedback as well as any instrument or pickup bias towards the low strings.

Increase Bass CW to beef up tone or bias lower strings more strongly. However, high strings will produce some lower tones or sub-harmonics which will be enhanced or reduced by the Bass Control.

3.2.2 MID Control: @ 590Hz +/-12dB

With a broad sweep it allows control of Middle range of frequency spectrum which is centred above bass but below Treble/High. Will overlap a little.

Cut Mid ACW to thin out tone or linearise or naturalise the tone of many lower mid biased guitar pickups, especially when mounted on steel strung Acoustic guitars. Also, speaker cabinets are rarely linear and are mainly Mid biased.

Cut Mid to reduce body handling noise or over loudness on lower strings, muddiness and boomy sound.

Increase Mid CW to thicken tone. This is a little more likely on Nylon Strung Instruments or where played finger-style.

### 3.2.3 TREBLE Control: +/- 13dB Centred broadly @ 10 kHz

HIGH allows control of treble at higher end of the audio spectrum which offers you increased brightness on turning CW or a mellow sound on turning ACW. Treble overlaps into Mid area. However, low strings will produce high tones or harmonics.

Cut Treble ACW to reduce high end feedback, harshness, externally generated hiss, squeaks from new strings or to compensate for over-bright pickups or too many hard reflective surfaces.

Increase Treble CW to compensate for old dull strings, weak top strings, overly mellow pickups or dull boxy sounding rooms and P.A. sound systems.

If you must apply 3 band EQ or any other facilities separately to each of two signals of a Blend System from the one instrument then you could use two EDM-1 units or an EDM-1 and EDB-2 routed into 2 Mixer Channels.

4 MIC USE NOTES: Headway Music Audio Ltd. do NOT recommend the use of internal Mics within instrument bodies for several reasons. Firstly, musical instruments are voiced to be heard from the outside whereas internal body sounds usually offer excessive mid/bass boom.

Secondly, Mics are meant to be used in free air where sound waves travel mainly from front of diaphragm to rear whereas inside instruments, sound reflections and partial cancellations from standing waves cause phase problems and prevent clarity. In addition, the sound quality and construction/reliability of Mics offered with pickup systems for internal use is often poor.

Finally, the placement of a Mic inside a resonant chamber producing uneven peaks and a preponderance of low frequencies makes it exceptionally prone to feedback.

Musicians should bear in mind that they might judge the sound of an internal Mic at very low volumes but will normally find it completely unusable at typical live performance volumes or in difficult acoustic conditions, even at low volumes.

If you try to blend in a little Mic you would probably have to turn down the Mic volume to such a low signal that it is effectively perceived as turned off. If you try to make the Mic sound a little less boomy and unnatural by pointing it out of the sound-hole you will be making it even more likely to pickup speaker cabinets and monitors which may make it likely to feedback.

If the internal Mic is on a flexible gooseneck you may lessen the problems by spending time finding the best sounding spot for placement but as soon as it inevitably moves or changes angle slightly or you take it to a different acoustic environment the problems are likely to worsen again.

Anti-feedback devices can help but the harder they work the more holes or bigger holes in the sound they need to remove which defeats the aim of using a Mic. Instead, if you use Mics we suggest you use them externally with Hyper Cardioid polar patterns, such as the DPA 4099 with its soft external body clip option, Mic stands with full sized, quality condenser Mics or using Proel's Guitar body mounting bracket with standard Mic holder.

External Mics will still be very prone to feedback compared to pickups however, they should sound better than internal Mics. Headway's Co-axial Piezo Cable Under Saddle pickups offer a more natural sound than flat pickups since they sense in 360 degrees.

As an alternative to a Mic, if you wish to add the impression of air in the sound try a quality digital reverb (e.g. Lexicon) with a slow natural decay and a room setting which is larger than the space you are performing in.

## 5 PHANTOM POWER TO: IN/OUT

### 5.1 Phantom Power to IN Socket via front panel Switch:

This enables external powering of certain Active Pickup Systems with no battery inside instrument where wired to accept Phantom Power via RING on Stereo Jack Lead or wired to accept Phantom Power to TIP. (Some Electret Condenser Mic Systems).

Active Pickup or Active Pickup/Mic Blender Systems wired for Phantom should NOT require an Internal Battery. This may be an advantage where maximum performance is required with an active system but where battery access may be restricted, e.g. “f” Hole Instruments and Resophonic Guitars.

Engage Mute then slide Phantom Switch on Front End of unit to right to “RING” for more typical pickup systems requiring 9v Phantom with Jack Outputs. Then, if required, slide switch to full right position for 9v power to “TIP” position for certain Electret Condenser Mic Systems .

**BE SURE TO CHECK IF PHANTOM POWER IS REQUIRED BY CHECKING THE WIRING SPEC. OF YOUR PICKUP/MIC SYSTEM WITH THE MANUFACTURERS NOTES BEFORE TRYING OUT.**

Headway Music Audio Ltd. will NOT be held liable for damage to other manufacturers pickup systems from Phantom Power.

Headway Music Audio Ltd. will NOT accept requests for information on other manufacturers wiring or specifications.

5.2: Power EDM-1 via Phantom Power from Mixer to Output socket while utilising XLR adapter. This would prevent current draw on your Battery and there is no need to remove PP3. Phantom (or External Power Supply) would override the Battery to save Battery life. Switch off Phantom Power (48v) from mixer before applying Earth Lift.

Powering via Phantom from mixer or via External PSU offers increased headroom and clarity.

**EDM-1 will NOT power via Phantom Power from mixer when Earth Lift switch is applied.**

If you run EDM-1 on Phantom remove any External Power Supply.

Powering Constraints: When powering EDM-1 via Phantom Power from mixer (48v via XLR adaptor) it is **NOT** possible for EDM-1 to provide Phantom Power (9v via switch) from IN socket.

EDM-1 Phantom Power switch (9v) should be OFF when not in use .

## 6 VOLUME CONTROL: 0-10

Turn CW to increase the Volume. Each marker is worth approximately 2.5 dB increase/decrease (= +/- 40% Approx.)

## 7 MUTE/LIVE SWITCH

Slide Up to Mute or down to switch LIVE with Red LED Illuminated to denote Mute ON indicating that Output is OFF. Useful to allow silent tuning in front of an audience or to switch off during periods of inactivity. Green LED indicates pre-amp is ON Live.

Apply Mute to enable quiet plug In/Out to IN socket.

## 8 RANGE CONTROL/ANTI-FEEDBACK 0-10

This is a supplementary rotary tone control often called a High Pass Filter which rolls off low-mid frequencies. It can be the most precise and effective method for broad cutting of intrusive or problematic sounds at the low to middle range.

The Low-Mid frequency problems could include feedback, excessive booming & body handling noise, background rumble or muddy lower mids from Instrument body, stage or room. By cutting these you allow through and amplify just the fundamental frequencies and harmonics above the frequency roll off point. May be partly countered or worked around by turning up Bass or Mid controls.

You could set the Range Control on the Instrument type described, e.g. "D" Guitar (Acoustic Guitar with bottom string de-tuned from "E" to "D", where the Range Control is rolling off below 70 Hz.) or you could turn it further CW and remove a wider low band set from a higher frequency. (See Trouble Shooter Checklist).

All EQ should be used carefully and as well as improving a sound they could be mis-used. If the Control is tuned up too far CW it will thin out the sound. However, you may need to turn the range further CW than the instrument listed setting (eg. Guitar) to prevent problems such as feedback.

An alternative view would be that carefully tuned active EQ boost and cut such as that in an EDM-1 can be used creatively beyond that of simple reproduction and problem solving.

## RANGE CONTROL – LOWEST TONES & ROLL OFF POINT

Bass Guitar/Double Bass (E)	=	40 Hz
Baritone Guitar (B)	=	60 Hz
Cello(C)	=	65 Hz
D Guitar (D Tuning)	=	70 Hz
Acoustic Guitar (E)	=	80 Hz

Bouzouki (Celtic/G)		
Octave Mandolin/Mandola	=	100 Hz

Tenor Guitar (A)	=	110 Hz
Viola/Tenor Mandola	=	130 Hz
Violin/Mandolin (G)	=	200 Hz
Uke (Soprano/A)	=	210 Hz
Rock Acoustic	=	300 Hz

## ROCK ACOUSTIC

If you need to amplify an acoustic guitar over a loud electric band especially where using stage monitor speakers, there may be little or no point trying to amplify the bass end of that acoustic instrument since it could be drowned out by Electric Bass Guitar and Bass Drum and may be trying to feedback at lower volume levels than where an acoustic guitar is likely to be audible.

The Rock Acoustic setting allows the shimmer of Acoustic Guitar Chords with a limited lower frequency content to deliver a useful sound with a minimum possibility of feedback.

Guitar: This setting is also the recommended starting point for the following Instruments with standard “E” tunings: 12 String, Electric and Nylon Strung Guitars, Resophonic Guitars and Lap Steel Guitars.

Bass: This setting applies to all instruments producing Bass such as Double Bass.

## 9 BATTERY POWERING

Via 9v PP3 (6F22) battery, as supplied, which are housed under end panel cover. Undo retained nut using finger/thumb, small coin or screwdriver to access batteries.

Connection is via non-reversible clip which should be pinched on tight.

Batteries should be new or checked so as not leaking. If one battery is leaking even slightly, dispose of batteries and replace.

There is no need to remove battery when Phantom Power or external Power Supplies are used.

Type of battery is more important than brand or manufacturer:

1st: Lithium: 300 Hours of Power ON, or maybe 150-200 Hrs if Phantom Switch also ON, which depends on \*current draw of device EDM-1 is Phantom Powering. *Lithium are banned from international transit fitted or not.*

2nd: Alkali: 150 Hrs of Power ON, or less hours if EDM-1 Phantom Switch also ON\*.

3rd: Zinc Chloride: Pattern of use is main determination of battery life.

We do not recommend re-chargeable batteries for this application as life is limited, Voltages start at 8.4v or lower and they are banned from International Shipping, but if you must, use Ni-Mh (*Nickel Metal Hydride*) type PP3/ 6F22 batteries. **Always keep a spare battery.**

Low battery Indicator LED on EDM-1 offers easy indication that battery life is close to being expended and voltage remaining is around: 7.5v. We do NOT recommend Zinc Carbon Batteries.

International Shipping with Batteries:  
See STORAGE & TRANSPORT.

## 10 LINE OUT JACK SOCKET & XLR ADAPTER/DI OUT

Line Out Jack Socket acts as a standard Mono Output. However, on insertion of XLR Adapter (supplied) it becomes a Balanced Di Out with Earth Lift Switch Option. Earth lift applies ONLY to battery powering or external PSU.

Adapter is Stereo Jack Plug to XLR.

## 11 SPECIFICATIONS

### 11.1 PHYSICAL SPECIFICATIONS ( Approx.)

Dimensions: Length 110mm (4.3"), Width 66mm (2 5/8"), Depth of Metal Box 30mm (1.18"). Depth including knobs and feet = 35mm (1.37").

Weight: 300g (10.5 oz).

Mic Stand Bracket Connector: Female threaded bush on rear at 1.5cm diam. (19/32" or 5/8" = 15mm). DO NOT OVER TIGHTEN!

### 11.2 ELECTRICAL SPECIFICATIONS (Approx.)

#### 11.2.1 CH.1 INPUT

Input Impedance: +Hi = >20 Meg Ohms, Hi = 5 Meg Ohms, Active/Low = 1 Meg Ohms

Gain Control to Jack: Continuously variable 0 - +20dB

Jack IN: Offers Mono Signal path IN via Tip plus Phantom Power option, sent when switched on via Ring or Tip.

#### 11.2.2 BAXENDALL INTERACTIVE 3 BAND EQ SECTION

Treble: @ 10 kHz +/- 12dB Shelf

Mid: @ 590Hz +/- 13dB Shelf

Bass: @ 120 Hz +/- 12dB Shelf

As Above @ 45Hz +/- 16dB

#### 11.2.3 RANGE CONTROL (High Pass Filter)

Slope Profile of Low frequency roll off: 12 dB per Octave.

#### 11.2.4 PHANTOM POWER

Output Jack socket with XLR Plug Adapter in place: accepts 48v Phantom from a mixer (Pins 2 & 3) where Earth lift switch is not engaged. Offers improved performance via increased headroom.

NB. When Earth lift is applied, Phantom is disconnected.

IN Jack Socket Input: 9v with 10 mA Current Limit on Ring option or 5K6 Resistor in Series, for Tip setting. See 3 Way Switch.

### 11.2.5 OUTPUTS

Line Output via Jack: Nominal 0.5v RMS @ 150 Ohms  
Mix of Ch.1 & Ch.2 + Aux IN via Mono Jack Socket.  
(Standard ¼" Diam.)

DI Balanced Output via XLR Adapter: Nominal 0.5v RMS @ 150 Ohms  
Electronically Balanced (Mono).

XLR Wiring: Pin 1 = Earth/Ground, Pin 2 = +Signal (Plus),  
Pin 3 = - Signal (Minus).

Noise Level (True RMS 20 Hz-20 kHz)  
At 20 dB gain, EDM-1 produces -90 dB.  
At 10 dB gain, EDM-1 produces -94 dB.  
Distortion: THD <0.05% Throughout Audio Range.

### 11.2.6 Power Consumption: 3.7 mA\*

If Phantom Power to IN Jack is Switched on and used, the additional  
Power drawn from device\* being powered will add to total Power  
Consumption.

11.2.7 OPTIONAL POWER SUPPLY UNIT. See 1.1  
PSU **MUST** be a regulated switching AC/DC Adapter: CE,UL  
Offers improved 18v performance via increased headroom.

Input: 100-240 VAC 50/60 Hz @ 100 mA+  
Output: 18VDC @ 0.5A

EDM-1 Input DC Plug Connections (L.P.S.)  
Outer = +VE (Positive) Inner = -VE (Negative)

EDM-1 PSU Input DC Plug Dimensions  
Centre Hole: 2.1mm Diam. Diam:5.5mm Length:10mm

Use ONLY Headway Music Audio Ltd. supplied EDM-1 PSU as in 1.1 Headway will not honour guarantees where incorrect Power Supply is used.

11.2.8 WEEE Regulations & Environmental Disposal: Power Supplies, Batteries and Pre-amplifiers should NEVER be randomly disposed of in a bin or sent for landfill disposal. Repair and service Pre-amplifiers for long term use and use local re-cycling and electronics collection schemes.

RoHS Regulations: EDM-1 and other Headway products are made in accordance with RoHS Regulations and are made free of lead and other environmentally damaging substances.

## 12 TROUBLE-SHOOTER CHECKLIST

### 12.1 AVOIDING ACOUSTIC FEEDBACK & ROOM RESONANCES

Turn the amplifiers, instruments and microphones down and turn off when not in use.

Re-angle instruments and Mics to the side of, off axis or behind the speaker cabinets.

Try re-positioning speakers.

Check that you have "Range" control sufficiently CW, to remove unwanted low frequency amplification.

Use EQ controls to cut frequency of feedback.

Covering or blocking the sound hole(s) of an instrument can often help give a few more decibels of level before the onset of feedback.

Sound absorbent materials such as drapes and heavy banners can help to damp sound reflections which cause feedback.

Where using two pickups or pickup + Mic and feedback is encountered:

i) Increase proportion of saddle/bridge pickup or magnetic pickup & reduce Contact Pickup or Mic; or

ii) Increase proportion of Contact Pickup and reduce Mic;

iii) Where using Mics, avoid Omini-directional and use Uni-Directional, preferably Hypercardiod such as DPA's 4099. Move source closer to Mic.

Headway's active under saddle pickups in fretted instruments (HE4 & Snake3) or the VL3 Active Violin Pickup should offer greater sound pressure levels before feedback.

Electronic feedback destroyers are rack units which when set up correctly, automatically tune into the troublesome feedback peaks and attenuate those allowing the remaining sound to be increased. However, they can be complex to use correctly and will remove holes from the sound which can defeat the point of using Mic's.

A Limiter or Compressor/Limiter, a rack unit patched into the sound system can be useful in limiting the peaks which set off acoustic feedback. These can be quite complex to use effectively.

The overall level may be increased by playing harder and getting the instrument closer to any microphones.

Damp any strings, which will not be in use either with techniques while playing or when left on stand.

Getting people, such as an audience into an enclosed performance space will soak up a lot of sound reflections and discourage feedback as if MABS or Mobile Acoustic Baffles!

Check that a power amp output or headphone output is not plugged into EDM-1 inputs.

## 12.2 UNEVEN STRING AMPLIFICATION, HARSH or BOOMY SOUND?

Under saddle pickups may not be fitted or seated correctly and evenly on the instrument. Contact a professional luthier in order to have the installation checked and put right.

If a contact pickup is in use, change its placement in order to get the best sound by locating the sweet spot and avoiding honks, resonances and hollowness.

If a microphone is in use, change its position to obtain the best balance and overall sound. Guitars often Mic up best with Mic pointed towards treble strings area of upper bout a little away from sound-hole

If a magnetic pickup is fitted in the sound hole, where possible, adjustment of the magnetic pole pieces and overall pickup heights and angles will enable the string balance to be adjusted.

## 12.3 POOR SOUND: WEAK, DULL or DISTORTED?

Make sure that any batteries on pickup systems and pedals are in good condition & Low Battery Indicator LED is not red. See 9. Battery Powering. Alternatively use Phantom Power (48v) from mixer or optional Headway EDM-1 PSU (External power supply).

Turn down gain control or excessively boosted EQ controls or engage attenuation switch (e.g. PAD control -15dB).

AVOID Passive D.I. boxes (transformers) which can change or degrade the sound of a pickup due to the way they load it and can add rhythmical load and discharge noises.

Check that a power amp output or headphone output is not plugged into EDM-1 inputs (or Outputs).

Check leads for cross leakage, excessive capacitance or resistance with an Electrical Meter or Cable Tester.

## 12.4 INTERFERENCE: HUM, BUZZ, HISS, RADIO?

Keep your EDM-1 and signal cables away from devices with strong magnetic fields.

These include large AC mains transformers, generators, lighting control systems, fluorescent and unearthed fluorescent lighting. If possible, switch off equipment which is causing interference.

Keep signal cables away from mains and speaker leads. Uncoil mains power leads.

Use highly screened microphone or guitar cables, shorter, uncoiled cable runs and metal shielded connectors with good connections.

When using the XLR to Jack adaptor for a D.I. output, set the Earth/GND LIFT switch to cut earth loop hums if required. Otherwise leave Earth Lift switch OFF!

Earth Lift switch only applies to battery or Headway EDM-1 PSU. Where Earth Lift switch is applied Phantom (48v) CANNOT be received from mixer.

AC Mains Filters prevent noise transmitted through mains power which can affect amplifiers.

If lighting causes hum and/or buzz, try to power your amplifier from a different AC mains ring which is not being used for stage lights.

Hum and buzz can be generated in a stringed instrument where there is no earth connection between output jack, strings or any tail piece. Cut externally generated hum via notch filter by cutting with Notch-Q on minimum at around 50-60 Hz.

Excessive hiss will normally be produced by a faulty device or poor quality noisy device in the chain or by imbalances between different gear. To reduce hiss, identify gear responsible and drive it harder while reducing its own gain. Turn down unused mixer channels.

Radio interference within the signal may be caused by the use of poor quality leads such as curly leads, especially where High Impedance and low output passive pickups are used.

To avoid, use highly screened jack leads into Inputs and use active pickups.

Use only current government licenced, type approved, multi-channel radio Mics and radio transmitters of good quality but if noise or broadcast radio interference is experienced, change for conventional Microphones and high screen leads.

## 12.5 INTERMITTENT or LACK OF SIGNAL

Check that all connectors are pushed firmly into their sockets.

Check that Switch is ON Live/Green LED (Mute is OFF), Gain control(s) and Master are turned up and Jacks are fully home.

Make sure battery connectors are pinched firmly on, the correct way around and are not leaking with no warning light showing (< 7.5v)

Check that any jack leads/cable are good physically with good solder connections and use a Meter/Cable Tester. Make sure jack probes are straight and that the tip contacts are not mis-shapen in any way.

Check that XLR leads are wired correctly. See Specifications. If powering EDM-1 via Phantom from mixer using XLR adaptor, Phantom will be disconnected if Earth Lift switch is applied.

Make sure that Jacks to your instruments are fully home. If a socket is set too deeply into a guitar a jack plug may not make full contact.

Check that mains supply is operating in chain of power supply with earth connected at all points.

It is recommended that you use the best quality of connectors, we recommend/associate with quality products:  
Neutrik, Deltron & Schurter, Switchcraft, Horizon, ST Pro & GH.

*If EDM-1 has somehow become overheated, turn off, cool it down and try turning on a little later to re-start, checking leads and connected devices. Try changing battery.*

Alternatively, Headway offers quality jack leads with appropriate lengths and specifications.

## 12.6 PERSISTENT PROBLEMS

**If** you have worked through the Trouble Shooting and Problem Prevention areas above and you still experience persistent problems and require help, please contact your dealer, a professional electronics technician or a Headway Authorised Service Centre where applicable.

### **Headway Products 2013:**

Sheer Acoustic Magnetic SAM-1 : Active Magnetic Sound Hole Pickup  
- Easy fit for Steel Strung Acoustic Guitar.

SA-120 & SA-250 Superior Acoustic Guitar Combo Amplifiers.

Headway Current Products include:

HE4 (e.g. HE4/G.FEQ - Superior Active Under Saddle Pickup System for Acoustic Guitar/Steel Strings).

Snake3 (e.g. Snake3 NY - Active Under Saddle Pickup for Nylon Strung Acoustic Guitar).

The Band - Bowed Instrument instant fit wrap around, passive body pickup. (Available for Violin, Viola, Cello & Double Bass).

A selection of quality & specialist Jack leads.

EDB-2 Equaliser Direct Blend – Compact 2 Channel EQ Pre-amp with comprehensive features including Tuneable Notch Filter and Di Output.

Sheer Acoustic SA2 & SA2-B - Active Under Saddle Pickup System for Acoustic Guitar & Bass with 4 Band EQ on sliders plus Volume control.

VL3 - Bridge based Violin Pickup System with Rosewood Clamp Jack .

## HEADWAY POLICY OF CONTINUOUS IMPROVEMENT

Headway Music Audio Ltd. operates a policy of continuous improvement and reserves the right to alter specifications, components and prices without prior notice.

**Validate your Guarantee only by registering it online within 30 days of purchase.**

We recommend that to get the best possible sound, you use *only* Headway Pickups and good quality true Condenser Microphones such as the excellent DPA (Denmark) Miniature Instrument Mics.

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