

DRAWMER

You may not realise it but you have been listening to Drawmer for the last 30 years, almost every time you turn on the radio, watch t.v. or go to a gig. Since the introduction of the DS201 noise gate in 1982 Drawmer products have consistently remained the unequivocal choice of producers, engineers and artist's, and, as such, have been installed in almost every major recording studio, live venue and broadcast facility throughout the world. Drawmer products are the engineer's indispensable tools that elevates good sound into truly stunning!

The company, which is based in Yorkshire, England, was founded by Ivor Drawmer, whose passion was designing audio circuits. "The whole thing started in 1981," explains Drawmer. "I had been playing keyboards with bands in Yorkshire, but that wasn't going so well and also I wasn't getting any younger. With the encouragement of friends I built a small batch of stereo delay lines, which I called the Multitracker, and that was the start of Drawmer."

Drawmer DS101: Noise Gate for the 500 Series

The Industry-Standard High-End Noise-Gate comes to the 500 Series!

The DS101 is the first noise gate designed specifically for the 500 Series rack system and takes its place alongside the Drawmer family of industry standard Noise Gates, such as the DS201, DS501 and DS404. Anyone familiar with those units will immediately be at home with the DS101.

Based on a single-channel of the DS201 the DS101 is a sophisticated noise gate incorporating a number of features pioneered by Drawmer, which are invaluable to the sound engineer, such as variable high and lowpass filters for "frequency conscious gating."

Other features include comprehensive envelope control, attack, hold, decay, and range, plus a whole host of other features, all adding up to one amazing processor.

When placed side by side in a 500 series rack two or more gates can be linked using the new infrared triggering mechanism employed on the DS101. This means that any number of gates can be linked with each having their own envelope shaping whilst the trigger pulse passes through unchanged, this opens up a whole world of "envelope follower" effects limited only by your imagination.



Features:

- Fully featured noise gate based on the industry standard DS201.
- Takes up a single 500 series slot.
- Proprietary Hysteris or “trigger stabilization” to prevent “chatter” around the threshold.
- Fully variable high pass and low pass filters for “frequency conscious” gating.
- Comprehensive envelope control, attack, hold, decay, and range.
- External triggering via key input or the new IR trigger pulse from another DS101.
- “Key Listen” facility.

- Extremely fast attack time, to preserve the natural attack of the sound.
- Linkable - up to ten units in one rack space - with individual envelope shaping.
- Drawmer "traffic lighting" metering.
- Can be used for "Gating" or "Ducking".
- Low noise design.

Setting up noise gates can be tedious and unrewarding. For example, when attempting to separate a signal from unwanted noise or crosstalk that is relatively high in level, spurious triggering of the gate by unwanted components within the sound can be a serious problem. This can often be experienced in the studio when recording a drum kit. If a gate is used to clean up the snare drum sound it is quite likely that the nearby hi-hats will spill into the snare drum microphone and cause the gate to open. Increasing the threshold level may cure this problem, but then there is a very real danger that any quieter snare drum beats may not cause the gate to open at all and the performance can easily be ruined.

The DRAWMER solution to this problem is the inclusion of two variable filters, one high-pass and one low-pass, which act upon the side-chain keying circuitry. By setting the output switch to key listen the user can hear the action of the filters and adjust them to reject high frequency spillage from the hi-hats. This now enables the gate to only open on the lower frequencies present in the snare drum.

The very fast attack of the DS101 means that it can open in a matter of micro seconds, thus preserving the natural attack of whatever sound is being gated and the comprehensive envelope controls mean that the gain can be changed at whatever rate best suits the material being processed. With vocals for example, a fairly fast attack is needed so as not to clip the leading consonants but a slower release time will prevent the end of words being clipped off and will also fade out any noise gradually rather than cutting it off abruptly. This latter point is very important as the human ear is far more sensitive to rapidly changing noise levels than to a constant low level noise.

Another important role played by the gate is in the reshaping of existing sounds. An example of this might involve a simple sampling delay line used to store a sound to be re-triggered later and added to a mix. A gate can be used to impart a slower attack or faster decay to the sound and careful setting of the decay envelope can effectively hide any noise present at the end of the sample. When using a sampler or drum machine the gate can be considered a triggered envelope shaper, and the wide range allowed by the envelope controls make the DS101 ideal for this application.

The unit can be switched to accept a key input, which allows the gate to be triggered externally. An example of this would be to use a snare drum signal to open the gate on a separate ambient microphone to create a natural alternative to gated reverb.

With a rack full of DS101's each can be individually switched from Gating to Ducking for 'voice over' applications or the removal of 'clicks' and 'pops'.

Drawmer DS201: Dual Noise Gate



The DS201 is a sophisticated dual channel noise gate incorporating a number of features pioneered by Drawmer, which are invaluable to the sound engineer, and not found on conventional noise gates.

Features:

- Variable high pass and low pass filters for "frequency conscious" gating.
- Comprehensive envelope control, attack, hold, decay, and range.
- Key input for external triggering.
- "Key Listen" facility.
- Extremely fast attack time, to preserve the natural attack of the sound.
- Balanced inputs and outputs.
- Stereo linkable.
- Can be used for "Gating" or "Ducking".
- High audio specification.

These features and its "user friendliness" have made it the "industry standard" throughout the world. Setting up noise gates can be tedious and unrewarding. For example, when attempting to separate a signal from unwanted noise or crosstalk that is relatively high in level, spurious triggering of the gate by unwanted components within the sound can be a serious problem. This can often be experienced in the studio when recording a drum kit. If a gate is used to clean up the snare drum sound it is quite likely that the nearby hi-hats will spill into the snare drum microphone and cause the gate to open. Increasing the threshold level may cure this problem, but then there is a very real danger that any quieter snare drum beats may not cause the gate to open at all and the performance can easily be ruined.

The DRAWMER solution to this problem is the inclusion of two variable filters, one high-pass and one low-pass, which act upon the side-chain keying circuitry. By setting the output switch to key listen the user can hear the action of the filters and adjust them to reject high frequency spillage from the hi-hats. This now enables the gate to only open on the lower frequencies present in the snare drum.

Drawmer pioneered the concept of frequency conscious gating, and the Drawmer DS201 was the first noise gate to include this feature.

The very fast attack of the DS201 means that it can open in a matter of micro seconds, thus preserving the natural attack of whatever sound is being gated and the comprehensive envelope controls mean that the gain can be changed at whatever rate best suits the material being processed. With vocals for example, a fairly fast attack is needed so as not to clip the leading consonants but a slower release time will prevent the end of words being clipped off and will also fade out any noise gradually rather than cutting it off abruptly. This latter point is very important as the human ear is far

more sensitive to rapidly changing noise levels than to a constant low level noise.

Another important role played by the gate is in the reshaping of existing sounds. An example of this might involve a simple sampling delay line used to store a sound to be re-triggered later and added to a mix. A gate can be used to impart a slower attack or faster decay to the sound and careful setting of the decay envelope can effectively hide any noise present at the end of the sample. When using a sampler or drum machine the gate can be considered a triggered envelope shaper, and the wide range allowed by the envelope controls make the DS201 ideal for this application.

The unit can be switched to accept a key input, which allows the gate to be triggered externally. An example of this would be to use a snare drum signal to open the gate on a separate ambient microphone to create a natural alternative to gated reverb.

Each channel can be individually switched from Gating to Ducking for 'voice over' applications or the removal of 'clicks' and 'pops'.

Drawmer DS404: Quad Noise Gate



The DS404 Quad Noise Gate has been designed to the highest specification to complement the DS201 Dual Noise Gate, acknowledged as the 'industry standard' gate throughout the world. Recognizing that there are many general gating applications which require equipment that is simple to operate and which occupies the minimum of rack space, Drawmer have designed the DS404 Quad Noise Gate utilizing new and unique 'Programme Adaptive' circuitry. This makes the DS404 ideally suited for use over a wide range of input signals, ranging from drums and other percussive instruments through to vocals, pianos and even complete mixes.

Facilities available on the DS404 include:

- Quad gate : Four channels of DS201 quality noise gates.
- Frequency Sensitive : The provision of variable Low-Pass and High-Pass Filters allows 'without compromise' frequency selective gating. The unit can be switched for either Internal or External Key source and the KEY LISTEN facility enables monitoring of the filter setting.
- Hard/Soft Gating : Each channel of the DS404 can be operated as a HARD or SOFT gate, providing quite different characteristics. Two coloured LEDs clearly indicate mode status. In the HARD mode the DS404 offers ultra-fast response time, stable triggering with complete freedom from chatter around threshold and a specialized release contour which is ideally suited to drums and other percussive material. In the SOFT mode the DS404 becomes a versatile Expander capable of handling vocals and sub mixes. Drawmer's unique 'Programme Adaptive' circuitry is used to optimise the attack time and ratio as well as having some effect on the manual release setting . A more gentle release characteristic is utilized to complement the SOFT gate.

- **Threshold :** A fully variable threshold control provides a range from +20dB to -70dB.
- **Release Control :** A fully variable release control is provided with times from 10 ms to 5 sec to ensure that essential envelope control is not sacrificed in exchange for an economy in rack space.
- **Attenuation Range :** The DS404 has switchable attenuation between 90dB and 20dB to allow for applications where a complete mute is not desired.
- **Chain Linking :** Operating the LINK control switches the channel on the right to SLAVE operation, where its gating mode, threshold and envelope characteristics are controlled by the MASTER (left) channel. Any adjacent three channels or two stereo pairs can be linked in this way for use in any conceivable situation where linking may be required.
- **LED Displays :** Drawmer's familiar tri-colour LED display is once again utilized as the optimum method for indicating the envelope status for each channel.
- **Input/Output :** The DS404 is provided with balanced inputs and outputs on XLR connections.

Drawmer DS501: Power Gate



The DS501 is a sophisticated dual channel noise gate with fully tuneable 'Peak Punch' incorporating a number of features pioneered by Drawmer, which are invaluable to the sound engineer, and not found on conventional noise gates.

Features:

- 'Tuneable' Peak Punch.
- Variable high pass and low pass filters for "frequency conscious" gating.
- Comprehensive envelope control, attack, hold, decay, and range.
- Key input for external triggering.
- "Key Listen" facility.
- Extremely fast attack time, to preserve the natural attack of the sound.
- Balanced inputs and outputs.
- Stereo linkable.
- Can be used for "Gating" or "Ducking".
- High audio specification.

Positioned in the Drawmer range over the industry standard DS201 Dual Gate, the DS501 Power Gate features a new dual mode 'tuneable' Peak Punch processing section on each channel. In tuneable mode a fully variable frequency selector with a range from 75Hz to 16kHz allows the user to shape the transients of the gated signal and 'tune-in' to the particular area of the audio spectrum where the Peak Punch is to be active. In addition a variable 'more' control allows the user to tailor the

amount of processing. A secondary Full Band Peak Punch mode is also available.

Designed principally for drum and percussive gating applications, tuneable Peak Punch makes it possible to add transient punch to frequencies lacking in individual drum sounds, adding greater definition and presence to the gated signal. Using low frequency Peak Punch adds depth to thin drums, whilst higher frequency Peak Punch can dynamically emphasise rim shots or the 'crack' of a snare drum. Setting up noise gates can be tedious and unrewarding. For example, when attempting to separate a signal from unwanted noise or crosstalk that is relatively high in level, spurious triggering of the gate by unwanted components within the sound can be a serious problem. This can often be experienced in the studio when recording a drum kit. If a gate is used to clean up the snare drum sound it is quite likely that the nearby hi-hats will spill into the snare drum microphone and cause the gate to open. Increasing the threshold level may cure this problem, but then there is a very real danger that any quieter snare drum beats may not cause the gate to open at all and the performance can easily be ruined.

The DRAWMER solution to this problem is the inclusion of two variable filters, one high-pass and one low-pass, which act upon the side-chain keying circuitry. By setting the output switch to key listen the user can hear the action of the filters and adjust them to reject high frequency spillage from the hi-hats. This now enables the gate to only open on the lower frequencies present in the snare drum.

The very fast attack of the DS501 means that it can open in a matter of micro seconds, thus preserving the natural attack of whatever sound is being gated and the comprehensive envelope controls mean that the gain can be changed at whatever rate best suits the material being processed. With vocals for example, a fairly fast attack is needed so as not to clip the leading consonants but a slower release time will prevent the end of words being clipped off and will also fade out any noise gradually rather than cutting it off abruptly. This latter point is very important as the human ear is far more sensitive to rapidly changing noise levels than to a constant low level noise.

Another important role played by the gate is in the reshaping of existing sounds. An example of this might involve a simple sampling delay line used to store a sound to be re-triggered later and added to a mix. A gate can be used to impart a slower attack or faster decay to the sound and careful setting of the decay envelope can effectively hide any noise present at the end of the sample. When using a sampler or drum machine the gate can be considered a triggered envelope shaper, and the wide range allowed by the envelope controls make the DS501 ideal for this application.

The unit can be switched to accept a key input, which allows the gate to be triggered externally. An example of this would be to use a snare drum signal to open the gate on a separate ambient microphone to create a natural alternative to gated reverb.

Each channel can be individually switched from Gating to Ducking for 'voice over' applications or the removal of 'clicks' and 'pops'.

Drawmer DL241: Auto Compressor



The introduction of the Drawmer DL241 Dual Channel 'Auto-Compressor' highlights the beginning of a new generation of dynamic processors which set new standards of sonic excellence. Its combination of features, displays and well designed control functions make it an outstanding product for a vast range of broadcast, sound reinforcement, and recording applications. The DL241 'Auto-Compressor' incorporates many automatic functions allowing the engineer to achieve optimum results in the minimum set up time but does not compromise skilled users with limited controls. Its sophisticated design produces a smooth, transparent and warm sonic performance.

Facilities available on the DL241 include:

- **Expander/Gate :** Drawmer's unique "Programmed Adaptive Expansion" circuitry allows effective 'single control operation' producing a fast smooth response and eliminating 'chatter' on or around threshold. This design differs from that of conventional Expanders in that the Expansion Ratio, Hold Attack and Release continually adapt themselves to the dynamics of the incoming signal. The Expander/Gate provides 80dB range and variable threshold from +20dB to 70dB with an OFF position. Switching is provided for 'Fast' or 'Slow' release characteristics. The 'Fast' mode can be used for instruments with rapid decay times or for additional tightening of the gating effect. The 'Slow' mode is more suitable for vocals and instruments with longer decay times or can be used to smooth over rough fade outs. A single LED indicates gating action.
- **Compressor :** A full Auto Attack/Release Compressor with variable Threshold and Ratio successfully combines the smoothness of the 'Soft Knee' principle with the precision of a 'Ratio' control. The advantage of this combination is that instead of the onset of compression being sudden at the threshold point the ratio increases over a 10dB input level range until it reaches the ratio set on the front panel control, thus achieving a more natural sounding compression. Selectable manual or fully automatic Attack and Release times dramatically extend the application range and user scope of the DL241. Selecting the 'Auto' mode removes the need for manual adjustment and is particularly valuable when the program being treated does not have predictable or consistent dynamics, often the case when processing a complete mix or a virtuoso bass guitar performance. Under manual control the wide range of adjustment available gives the user the ability to create dynamic effects as well as normal compression.
- **Peak Level. 'Zero Response Time', 'Zero Overshoot' circuitry :** This provides an absolute limit to the peak level of the output signal, adjustable from 0dB to +16dB above system level. When set to the required level, any excessive peaks will be stopped and the gain momentarily decreased if necessary. The 'Zero Response Time' is essential to avoid unpleasant distortion when mastering for CD or sending any signal to digital equipment. 'Zero Response Time' means that the DL241 provides complete protection from even the fastest and shortest signal 'spikes' (overloads), making the unit also ideally suited for speaker system protection in sound reinforcement

applications.

- Metering : Comprehensive bar graph displays give 'at a glance' indications of gain reduction, and output signal level Gain reduction from 1dB to -30dB is shown simultaneously with signal level from -20dB to +15dB Other single LEDs indicate function status of Gating Acton, Auto Mode, Bypass, Peak Limiting, Stereo Linking, and Power On.
- Stereo Link : When processing stereo signals, linking should be used to prevent image shifting. This facility ties both channels together. Using channel 1 (left) as the master channel removes the need to duplicate control settings for both channels.
- Bypass : A fully balanced hard-wire bypass connects the input directly to the output allowing signal to pass through the unit with no power applied. In bypass the VU level meter displays the Input signal.
- Operating Level : The operating level of the DL241 can be instantly switched, independently on each channel, for either +4dBu or -10dBu operation using a rear panel push switch.
- Input/Output : The DL241 is available with either XLR connections and fully balanced inputs and outputs, or with stereo jack (TRS) connections, fully balanced inputs and single ended outputs.

Drawmer DL251: Spectral Compressor



It is well known that compression, in its basic form, tends to remove high frequencies from any material with a wide bandwidth. This is because material usually has less energy at high frequencies than it does at low frequencies and since single band compressors are not frequency conscious, the 'highs' are attenuated together with the 'lows'. Using a slow attack time improves matters to some extent, but signals containing many harmonics (eg: vocals, strings and brass) or dynamic signals with a powerful 'leading edge' (eg: piano, kick and snare drum) tend to lose some clarity which often requires further audio processing. It is a fact that many engineers who would like to use a compressor in a particular application, avoid doing so because they feel that the 'sound loses something'. The DL251 'Spectral Compressor', incorporates a variable 'Dynamic Spectral Enhancement' (D.S.E.) section which eliminates the problems associated with full band compressors by restoring the high frequency energy lost during the full band compression process. This enhancement circuitry is extremely effective where compression and limiting are employed for broadcast transmission, or across complete mixes in a stereo mixdown situation. 'Dynamic Spectral Enhancement' has many creative applications when recording individual components at the multi-track stage, particularly on such programme as acoustic guitar, piano, brass and vocals.

Facilities available on the DL251 include:

- **Compressor** : The compressor section can be switched to provide either HARD or SOFT knee compression. In both the HARD and SOFT modes a Ratio control is available. In the SOFT mode the ratio increases gradually over a 10dB input level range until it reaches the ratio set on the front panel control, thus achieving a more natural sounding compression. Selectable manual or automatic Attack and Release times dramatically extend the application range and user scope of the DL251. Selecting the 'Auto' mode removes the need for manual adjustment and is particularly valuable when the programme being treated does not have predictable or consistent dynamics, such as on complete mixes, vocals or 'slapped and pulled' bass guitar. Under manual control the wide range of adjustment available gives the user the ability to create dynamic effects as well as normal compression.
- **Enhance Level** : A variable Enhance control can be used to 'dynamically' boost any high frequency energy lost during the full band compression process and has sufficient range to add additional 'Spectral Energy' to the programme material for creative processing. When no compression is taking place, the 'Dynamic Spectral Enhancement' circuitry is inoperative and so no change is made to the signal. However, as the signal level rises to the point where gain reduction is taking place, the Enhancement system 'kicks in' applying dynamic boost which is directly related to the amount of gain reduction taking place. A front panel switch offers an instant A/B comparison of this feature and a green LED indicates the amount of enhancement taking place.
- **Metering** : Comprehensive bar graph displays give 'at a glance' indications of gain reduction, and input/output signal level Gain reduction from 1 dB to -30dB is shown simultaneously with signal level from 20dB to + 15dB Other single LEDs indicate function status of Hard/ Soft compression, Auto Attack/ Release, Side chain monitoring, Bypass, Enhancement, Peak Limiting, Stereo Linking and Power on.
- **Side Chain Listen** : A front panel push button with LED status enables the monitoring of any external processing applied to the side chain access connections on the rear panel.
- **Bypass** : A fully balanced hard wire bypass connects the input directly to the output allowing signal to pass through the unit with no power applied. In bypass mode the output level bar graph displays the Input signal.
- **Stereo Link** : When processing stereo signals, linking should be used to prevent image shifting. This facility ties both channels together. Using channel 1 (Left) as the master channel removes the need to duplicate control settings for both channels. A rear panel switch allows the selection of 'Peak' or 'Average' stereo signal detection.
- **Peak Level** : 'Zero Response Time', 'Zero Overshoot' circuitry provides an absolute limit to the peak level of the output signal, adjustable from 0dB to +16dB above system level When set to the required level, any excessive peaks will be stopped and the gain momentarily decreased if necessary The 'Zero Response Time' is essential to avoid unpleasant distortion when mastering for CD or sending any signal to digital equipment. 'Zero Response Time' means that the DL251 provides complete protection from even the fastest and shortest signal 'spikes' (overloads), making the unit also ideally suited for speaker system protection in sound reinforcement applications.

- Operating Level : The operating level of the DL251 can be instantly switched, independently on each channel, for either +4dBu or -10dBu operation using a rear panel push switch.
- Input/Output : The DL251 is provided with balanced inputs and outputs on XLR connections.

Drawmer DL441: Quad Auto Compressor Limiter



The DL441 Quad Auto Compressor/Limiter captures four channels of Drawmer's innovative DL241 'Auto Compressor' in only 1U of rack space. The inclusion of new sophisticated 'automated' circuitry allows the engineer to precisely control both the dynamic range and 'absolute' peak level of the programme instantly, without sacrificing essential control parameters. This perfect balance of features makes the DL441 ideal for use in sound reinforcement and outside broadcast applications where an economy in rack space is essential. Each channel combines a fully professional 'Auto Attack/Release' Compressor with a variable threshold 'Peak Level' Limiter on the output providing a transparent 'endstop'. High resolution bar-graph displays on each channel allow gain reduction and output level to be viewed simultaneously, of particular importance in darkened concert hall or control room situations.

Facilities available on the DL441 include:

- Compressor : The compressor section can be switched to provide either HARD or SOFT knee compression. In both the HARD and SOFT modes a Ratio control is available. In the SOFT mode the ratio increases gradually over a 10dB input level range until it reaches the ratio set on the front panel control, thus achieving a more natural sounding compression. In HARD mode the compressor provides a more precise means of controlling gain, where the ratio as set on the front panel is applied immediately the signal exceeds threshold. This is particularly useful in many broadcast applications. HARD knee compression can also be used creatively as an effect, particularly in the treatment of drum and guitar sounds, or for giving rock vocals a 'compressed sound'.
- Auto Attack and Release : removes the need for manual adjustment by producing a response which constantly follows the dynamics of the signal. This enables the DL441 to preserve crisp transients without allowing excessive peaks to occur. A smooth yet lively recovery from compression minimizes side effects such as 'pumping' and 'breathing'. This feature is particularly valuable when the program being treated does not have predictable or consistent dynamics, such as complete mixes, vocals or 'slapped and pulled' bass guitar.
- Peak Level Limiter : 'Zero Response Time', 'Zero Overshoot' circuitry provides an absolute limit to the peak level of the output signal, adjustable from 0db to +16dB above system level. 'Zero

Response Time' transparent limiting means that the DL441 provides complete protection from even the fastest and shortest signal overloads, making the unit ideally suited for speaker system protection in sound reinforcement applications. The sophisticated circuitry will also prevent unpleasant distortion when used for digital mastering.

- **Metering :** Comprehensive bar graph displays give 'at a glance' indications of gain reduction, and input/output signal level. Gain reduction from 1dB to 30dB is shown simultaneously with signal level from 10dB to +10dB. When the channel is in BYPASS the output bar graph displays the input signal level. Other single LEDs indicate function status of Hard/Soft compression, Bypass, Peak Limiting, Linking, and Power on.
- **Bypass :** A fully balanced hard-wire bypass connects the input directly to the output allowing signal to pass through the unit with no power applied.
- **Stereo Linking :** Channels 1-2 and/or 3-4 can be stereo linked, where the left channel of the stereo pair becomes the master.
- **Operating Level :** The operating level of the DL441 can be instantly switched, independently on each channel, for either +4dBu or -10dBu operation using a rear panel push switch.
- **Input/Output :** The DL441 is provided with balanced inputs and outputs on XLR connections.



Drawmer DA6

DA6 - Balanced Distribution Amplifier



The distribution of mono and stereo balanced audio signals from a single source to multiple destinations has many applications including multi-zone sound reinforcement installations, live sports events coverage, broadcast studios, video suites, duplication or indeed anywhere high quality audio has to be distributed to a number of locations down long cable runs.

The Drawmer DA-6 is a six channel stereo (or twelve channel mono) distribution amplifier featuring XLR balanced inputs and outputs with optional transformer balancing where remote amplifiers and recorders are fed from separate power supplies.

The stereo Input features individual left/right level controls with LED bargraph metering enabling the correct balancing of stereo material or two mono signals. Each of the six outputs incorporate further left/right level controls and a Mono/Stereo switch providing the selection of either one stereo output or two mono outputs per channel. This

feature allows the DA-6 to function as either a 1 x stereo input/6 x stereo outputs or 1 x mono input/12 x mono output unit or any combination of the two.

The output section consists of a Channel Select so that the individual left/right output level of each channel is displayed on the output LED bargraph and can be monitored by the Headphone jack socket. A pair of auxiliary link stereo jack sockets (TRS) are provided via the rear panel for connection to further DA-6 units for the distribution of even more channels.

Features:

- 1x6 Stereo Distribution Amp with Monitoring.
- 1 set of stereo (2) XLR inputs.
- 6 sets of stereo (2) XLR outputs.
- Input stage has LED level meter.
- Each output channel can be switched to mono.
- Each output channel can be individually monitored.
- Built-in headphone amp.
- Optional transformer balanced outputs.
- Electronically balanced inputs with individual left/right level controls.
- LED metering on input for balancing stereo material or two mono signals.
- Left / Right level controls on each output with a stereo / mono switch.
- Headphone jack to monitor output of selected channel.
- LED metering on output of selected channel.
- Auxiliary pair of balanced 1/4" output jacks for linking multiple DA6 units.
- 1 unit rack space.
- Inputs and Outputs are balanced XLRs at +4dBu.

Drawmer LA12: Line Distribution Amplifier



The LA12 is a low noise, low crosstalk distribution amplifier with high bandwidth specification. The unit provides one stereo input with master 'gain' and 'balance' controls and twelve stereo outputs, each with individual output level control. It may be used to distribute one stereo signal to up to twelve different outputs. A typical application example would be for the distribution of one stereo signal to other rooms/areas within a complex e.g. nightclub, shopping mall etc., but it may be used for a variety of other applications, such as real time cassette duplication.

Features Include:

- One stereo input with master gain and balance controls.
- Twelve stereo outputs each with individual output level controls.
- If more than twelve stereo outputs are required an auxiliary stereo output, which follows the input gain and balance controls, can be linked to the input of a second LA12.

- The unit will operate at system levels in the range - 20dB to + 10dB.
- A maximum gain of + 20dB is available through the unit which allows a wide range of 'source' and 'destination' equipment to be interfaced.
- All audio connections are on professional quality phono (RCA) connectors for ease of installation.

Drawmer 4X4: Portable Active Splitter



The Kickbox 4x4 is an 'all terrain' 4 in/16 out mic/line signal splitter. Its extremely high audio quality, robust build and portability make it the ideal tool to provide multiple outputs for live sound, broadcast coverage, sports events, live recording, press conferences, corporate events and any situation where distribution of high quality audio is required. It incorporates 4 studio grade mic/line pre-amps, each providing up to 66dB of gain and 16 balanced output stages, each with the option of transformer isolation and comprehensive linking facilities.

The 4x4 is supplied as standard in a road proof case with a removable lid for unhindered access to all controls and connections.

Inputs

- 4 STUDIO GRADE MIC/LINE PRE-AMPS.
- INDEPENDENT INPUT BARGRAPH METERING.
- 66dB OF VARIABLE GAIN.
- 48V PHANTOM POWER.
- MIC/LINE SWITCHING.
- HEADPHONE MONITORING FACILITY.

Outputs

- 4 OUTPUTS PER CHANNEL.
- ACTIVE SPLITTING ALLOWS FOR LONG CABLE RUNS.
- OPTIONAL TRANSFORMER ISOLATION.
- TRANSFORMER LOADED LED STATUS.
- LINKING.

Can be configured as

- 1x 1 IN/16 OUT.
- 2x 1 IN/ 8 OUT.
- 1x 1 IN/12 OUT plus 1 IN/4 OUT.
- 4x 1 IN/4 OUT.

Other Features

- Portability.
- Interstackable.
- Removable Lid to provide easy access and cable routing.
- Compact self contained road proof case eliminates the need for bulky flight cases.
- When locked, it is dust / water / corrosion proof.

Drawmer 4X4R: Rackmount Active Splitter



The 4x4R is a 4 in/16 out mic/line signal splitter. Its extremely high audio quality, robust build make it the ideal tool to provide multiple outputs for live sound, broadcast coverage, sports events, live recording, press conferences, corporate events and any situation where distribution of high quality audio is required. It incorporates 4 studio grade mic/line pre-amps, each providing up to 66dB of gain and 16 balanced output stages, each with the option of transformer isolation and comprehensive linking facilities all in a 1U rackmountable housing.

Inputs

- 4 STUDIO GRADE MIC/LINE PRE-AMPS.
- INDEPENDENT INPUT BARGRAPH METERING.
- 66dB OF VARIABLE GAIN.
- 48V PHANTOM POWER.
- MIC/LINE SWITCHING.
- HEADPHONE MONITORING FACILITY.

Outputs

- 4 OUTPUTS PER CHANNEL.
- ACTIVE SPLITTING ALLOWS FOR LONG CABLE RUNS.
- OPTIONAL TRANSFORMER ISOLATION.
- LINKING.

Can be configured as

- 1 IN / 16 OUT.
- 2 X1 IN / 8 OUT.
- 1 IN / 12 OUT PLUS 1 IN / 4 OUT.
- 4 X4 IN / 4 OUT.

Drawmer 1960: Mic Pre / Vacuum Tube Compressor



There is little doubt in the minds of many engineers and producers that vacuum tubes possess a unique sound quality providing a "warmer, more alive" sound. Combining eight active tube stages and the low noise and reliability of solid state electronics, the Drawmer 1960 provides the ultimate direct interface between the sound source and the recording medium. The Drawmer 1960 is a two channel unit with each channel comprised of a completely natural sounding "soft knee" vacuum tube compressor and an extremely low noise microphone pre-amplifier with switchable 48 volt phantom power. A further auxiliary instrument pre-amp with EQ is also provided. This powerful combination of the classic valve circuit, offering unsurpassed tonality, and the low noise balanced microphone input with up to 60dB of gain has allowed engineers throughout the world to exploit the full potential of high performance condenser microphones. An example of this would be the direct to digital stereo recording of live classical music without the necessity of a mixing console.

The Compressor: Because the compressor is a soft knee type, it requires few controls. Strictly speaking, a soft knee design does not have a rigidly defined threshold but the title 'Threshold' has been retained for the "amount of compression" control for the sake of familiarity. The Threshold range is continuously variable between infinity and -24dB, the theory being that signals below the threshold are essentially unprocessed and the signals exceeding this threshold are subjected to increasing amounts of gain reduction dependent on by how much they exceed the threshold.

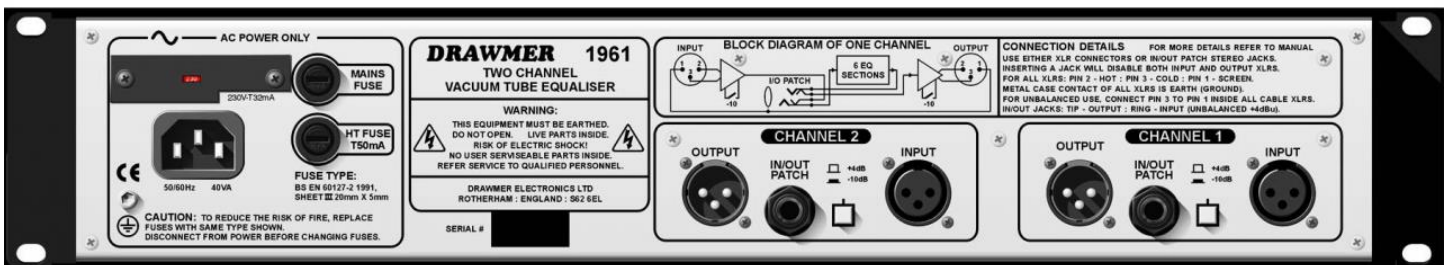
The attack and release times are switchable rather than being continuously variable and this method of operation falls into line with that of its all valve predecessors. Attack simply offers a choice of slow, medium and fast whilst release has six settings. Positions one to four have fixed release times whilst positions five and six are two different programme dependent release time modes making the unit ideally suited to programme material with complex dynamics such as complete stereo mixes and vocals. Interestingly, the attack times are further modified by the choice of release setting so the range of choices are wider than it might first appear.

Because compression is a form of controlled gain reduction, a stage of make-up amplification follows the compressor section giving a range of +20dB. The VU meters may be switched to monitor either the amount of gain reduction taking place or the output signal level and the two channels may be

used either independently or as a stereo pair, depending on the setting of the stereo link switch. The side chain access points may be used to patch in equalisers to enable the compressor to act as a de-esser. As with other Drawmer products, the by-pass switch offers a choice of Normal, By-pass and Side Chain Listen modes so that if you have patched in any additional side chain processing, you can easily monitor what effect it is having.

In addition to the balanced microphone and line inputs on the rear of the unit an auxiliary input on the front panel gives direct access for guitars or electronic instruments. Equalization is provided along with sufficient gain to overload the tube pre-amp for sustain effects. The Aux input is a valuable addition as it combines the virtues of a D.I. box and equalizer with the compressor allowing the instrument to be simultaneously processed and routed to the mixing console or directly to the recorder.

Drawmer 1961: Vacuum Tube Equaliser



It has long been recognized that vacuum tubes impart a unique 'warmth' and 'musicality' to an audio signal, but many of the 'classic' tube equalizers fall short of the technical performance demanded in today's digital recording age. Designed to complement the widely acclaimed Drawmer 1960 Mic Pre-Amp Vacuum Tube Compressor, the 1961 Vacuum Tube Equalizer combines low noise circuitry with no fewer than twelve active tube stages to provide two channels of exceptional equalization possessing unique 'personality'. Rather than employ a continuously variable resistor as a means of frequency control, the 1961 utilizes the same rotary 'step' switching system used in vintage designs. This enables the component values for each frequency band to be optimized for uncompromising performance across the entire audio spectrum and also makes setting up more accurate, particularly when treating stereo signals.

The design of the 1961 allows the user to control the amount of 'warmth' by deciding how hard to drive the tubes giving a sound as 'clean' as the best discrete solid state designs or as 'hot' as the 'hottest' classic tube designs. The 1961 and 1960 Can be 'interlinked' to provide, in effect, a two channel vacuum tube mixing console, - the perfect mastering or post audio 'sweetening' tool.

Features include:

- **Input level :**
A variable input level of -20dB to +20dB ensures compatibility with a wide range of input source material and enables the user to optimize signal level and drive the tubes 'soft' or 'hot' as required. LED bargraph displays give a clear indication of the input signal level.
- **High Pass Filter :**
A variable 12dB/Octave roll-off filter adjustable from - 15Hz to 500Hz section enables the user to remove unwanted low frequencies and sub-sonic noise.
- **Equalization :**
Each channel of the 1961 has four main equalizer sections with six carefully chosen overlapping frequencies and a separate tube stage for increased harmonic clarity. Each section also includes variable band width from 0.3 Octave to 3 Octaves and +18dB of Cut and Boost. BASS frequencies (Hz) 20, 32, 50, 80, 125, 200. LO-MID frequencies (Hz) 100, 180, 250, 400, 650, 1K. HI-MID frequencies (kHz) 0.5, 0.8, 1.2, 2.0, 3.2, 5.0. TREBLE frequencies (kHz) 2.5, 4, 6, 10, 15, 25.
- **Low Pass Filter :**
A variable 12dB/Octave roll-off filter adjustable from 2.5kHz to 56kHz enables the user to remove high frequency interference or to band limit excessively high levels of high frequencies.
- **Output Stage :**
Two additional tube stages in the output section of each channel allow the user to achieve 'soft clipping' by adjusting the input level control whilst visually monitoring the effect upon the 'Soft' and 'O/L' (Overload) LED's.
- **Bypass :**
In addition to a master bypass switch, each of the parametric/shelving filters has its own separate bypass switch, making the 1961 very straight forward to set up. It allows instant A-B comparison and also enables the tube output stages to be used to add tube coloration without EQ simply by leaving each channel switched to 'In' and each individual EQ sections switched to 'Out'. The master bypass switch for channel bypasses all the filter sections as well as the output stage vacuum tube circuitry.
- **Operating Level :**
Levels of -10dBu and +4dBu are selectable using a rear panel switch.
- **Insert Connections :**
Insert point 1/4" jack connectors on the rear panel enable direct connection to the Side chain or Insert points of the Drawmer 1960 Mic Pre-Amp/ Vacuum Tube Compressor. The 1961 and 1960, when 'interlinked', produce a powerful package for recording signals direct to tape; gain control, EQ & compression can be applied to mic/line level signals without having to go via a mixing console.
- **Inputs and outputs :**
The 1961 is provided with balanced inputs and outputs on XLR connections.

Drawmer 1968 MkII: Dual Channel Tube Compressor



Blend valves and FETs for quality compression. The 1968 MkII is a 1U Tube/FET 'stereo bus' compressor which by design delivers a transparent 'open' sound even during periods of heavy compression.

The original Drawmer 1960 used a tube stage at the front of the compressor, whilst the 1968 MkII utilises a J-FET (Field Effect Transistor) gain reduction circuit that operates faster than an opto-isolator. The compressor uses a 12AX7 tube makeup gain amplifier where you can add, with the Output Gain control, up to 20 dB of additional gain. The need for a ratio control has been removed as the compressor operates on the soft knee principle where the onset of compression is progressive.

The 1968 MkII expands attack times to six choices: 2, 9, 15, 25, 30 and 50 ms. Release times come in three fixed times (100ms, 500 ms and 1 second) and three program-dependent choices--200 ms to 2 sec, 500 ms to 5 sec and 1 to 10 seconds--all program-dependent and automatic.

The 1968 MkII provides full sidechain access for connecting an external equalizer for vocal stressing or de-essing.

Featured on both channels is a switchable 'BIG' and 'BIGGER' mode which applies less processing to the fundamental low frequency but still disciplines the upward associated harmonics which if untamed can result in a 'boomy' or 'boxy' sound. The result - a solid bottom end with enhanced sub-bass and a smoother, wider frequency response overall. This lets the operator use more compression on an overall mix with less pumping action caused by a kick and/or bass instrument.

The outputs of Channels 1 and 2 are monitored on two yellow illuminated VU meters - with a red warning glow to signify 'approaching clipping'. A three-position switch adjusts the meters to show either normal output level, gain reduction or VU +10dB mode, which re-scales the meter for users working at 'hot' output levels.

An output switch selects normal compressor output, hard-wired bypass and sidechain listen.

The key features are as follows:

- 2 Channel Tube/FET Compressor.
- 2 soft-knee compressors with variable threshold, attack, release and output gain.
- Switchable BIG and BIGGER control on each channel.
- Dual mono or true stereo link operation.
- Side chain access and side chain listen facility.
- VU metering of gain reduction and output levels.
- Switchable +10dB mode on VU re-scales the meter for users working at 'hot' output levels.

- VU red warning glow to signify 'approaching clipping'.
- Balanced +4dB XLR in/out.

New features to the 1968 MkII:

- Expanded the BIG to include BIGGER - setting the filters to 75Hz and 150Hz.
- Added internal jumpers that can be configured to remove the soft clip section.
- Added internal jumpers to make the output hotter by 6dB, if required.
- Improvement have been made to the PSU to lower the noise floor.

Drawmer 1969: Vacuum tube Compressor Pre-Amplifier



The 1969 Vacuum Tube Compressor Pre-Amplifier derives from a collaboration between two of the audio industry's most established names, Drawmer (UK) and Mercenary Audio (USA). When Ivor Drawmer rose to the challenge of outspoken US producer/engineer 'Fletcher' of Mercenary Audio to build a special version of the famed Drawmer 1960 (used by Eric Clapton, Madonna, Sheryl Crow, Stevie Wonder, Bryan Adams and thousands of artists around the world) - both sides joined forces and the 1969 Vacuum Tube Compressor Pre-Amplifier was born!

Main Features:

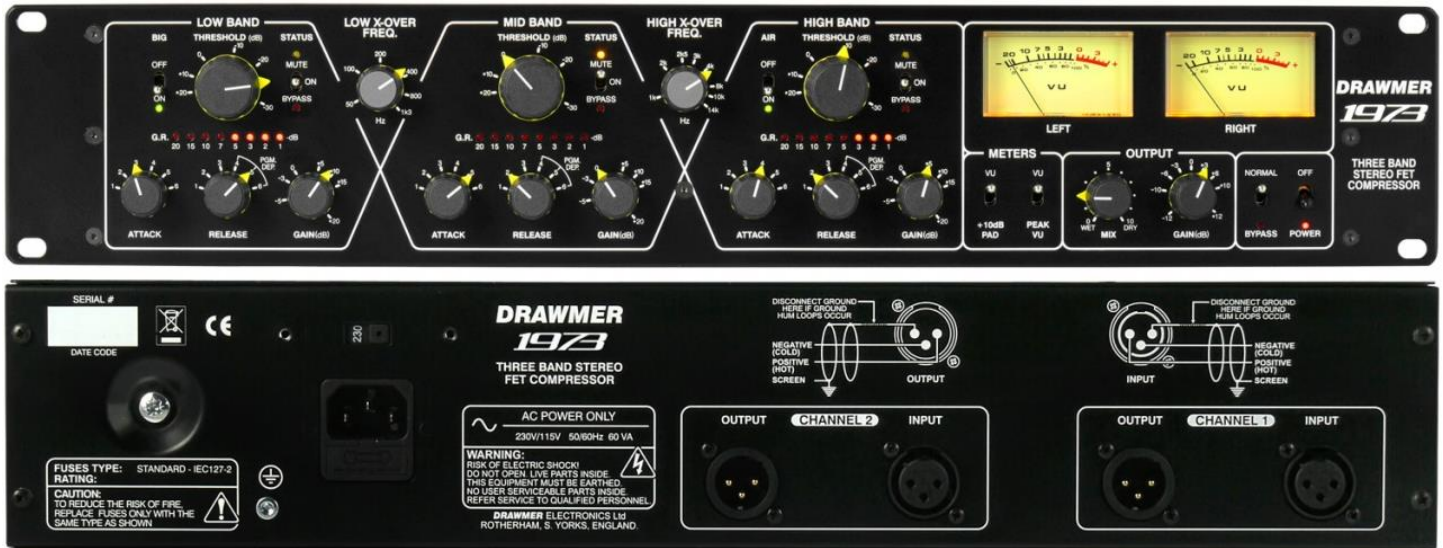
- 2 mic/line pre-amps with variable gain, 48V phantom power, filters and phase reverse.
- Instrument tube pre-amp with variable gain, EQ, phase reverse and brightness boost.
- 2 soft-knee tube compressors with variable threshold, attack, release and output gain.
- True stereo link operation with BIG position for retaining bass frequencies.
- Side chain access and side chain listen facility.
- VU metering of gain reduction and output levels.
- Individual +4dB/-10dB inserts / Balanced +4dB XLR input/output connectors.

Based on Drawmer's original 1960 Mic Pre-Amp/Tube Compressor (itself inspired by the classic Fairchild 670), the 1969 offers a host of new features, and more impressively - a completely new sound!

Retaining the concept of twin mic pre-amps, the 1969 uses 'Burr-Brown' op amps for a silkier sound - and a Phase Reverse switch available in Instrument, Mic and Line modes increases versatility. The 1969 employs true Stereo Link operation with channel one's Threshold, Attack and Release controls becoming master to both channels. Stereo Link also offers a BIG position which retains bass frequencies by rolling off the detection signal at 100Hz minimizing undesirable pumping during compression. Output Gain make-up can be independently controlled on each channel. The 1969 Vacuum Tube Compressor Pre-Amplifier incorporates new tube circuits designed to add warmth to

mic/line signals, and the instrument (DI) pre-amp has its own tube stage enabling classic overdrive effects when inserting guitar, bass and other instruments - true to the original Drawmer 1960 design.

Drawmer 1973: Three Band FET Stereo Compressor



The award winning 1973 is a multi-band compressor with the versatility, control and ability to shape sound that no full band compressor could ever provide and at an affordable price.

Expanding on the renowned range of dynamics processors Drawmer introduce an affordable Three Band Stereo FET Compressor that every engineer will completely appreciate - the 1973. The culmination of 30 years of development and experience, the 1973 combines the functionality and control of the world class Drawmer S3 with the familiarity and quality of the illustrious 1960 and 1968, providing three bands of transparent, intuitive compression for the price of a conventional single full band compressor.



How does the 1973 differ from a full band compressor? In essence, the 1973 comprises a set of crossover filters that splits the audio signal into three frequency bands, each split signal then passes through its own compressor and is independently adjusted, after which the signals are recombined and the final Wet/Dry mix and levels can be adjusted. The advantage is that one band's compression has no effect on the others.

What's so good about a three band compressor anyway? The 1973 can pull off amazing feats that a single-band compressor could never accomplish. For example, it can easily prevent an acoustic guitar, cello, or double bass from sounding boomy on low notes without thinning the highs.

Are you recording a vocal track that sounds too shrill? The timbre can easily be altered without eliminating detail and clarity. Adding heavier compression in the bass band can add to the thickness and richness of the voice, in the mid band raspiness is controlled, whilst compression to the high band can give sizzle and definition to an otherwise bland voice. In addition, sibilance can easily be tamed.

In a mastering situation, having independent control over each band can resolve a problem mix, pulling out individual instruments, brightening the brilliance/air or making the bottom end of a mix sound huge while simultaneously avoiding "pumping" or "breathing" artifacts and increasing headroom.

Features:

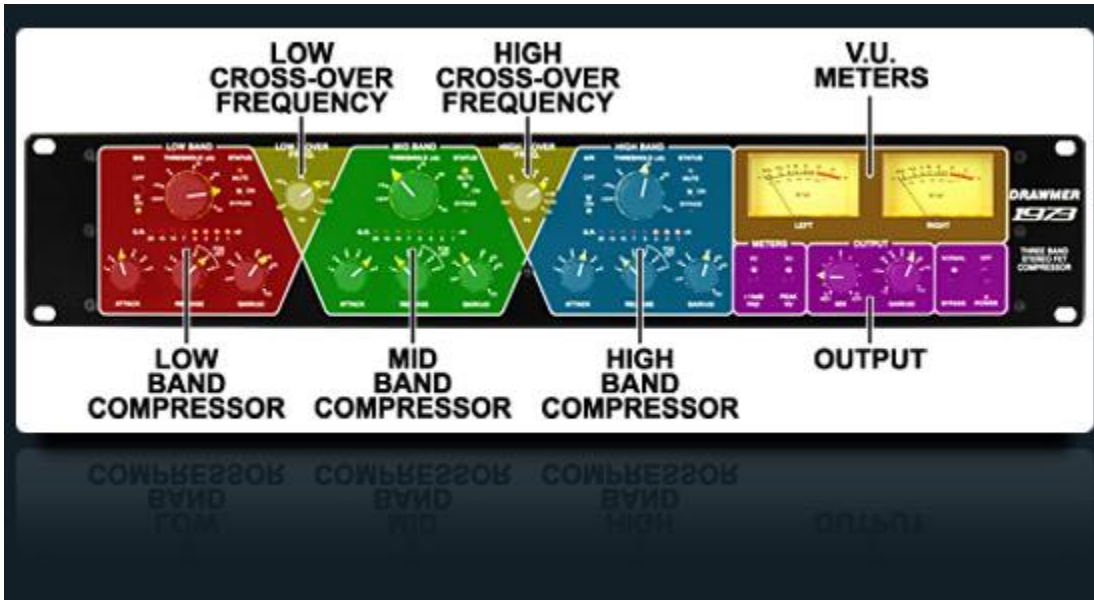
- Standard intuitive controls such as Threshold, Gain, Switched Attack & Release with Gain Reduction Metering on Each Band.
- Fast Reacting Soft Knee F.E.T. Design with excellent Left/Right Tracking across the Full Range of compression.
- Variable Wet/Dry Mix plus Output Gain Knobs give a 'Parallel Compression' function without the need for external mixing devices, providing Complete and Effortless Control over the amount of compression used and Output Levels.
- Variable Band Split Filters at a 6dB Per Octave slope with Switch-able Mute and Bypass on Each Band make 'Tuning In' to a Frequency Simple.
- 'Big' and 'Air' Modes Help to preserve the Very Deep Lows and Enhance the Sparkling Highs.
- Two Analogue V.U. Meters with Switchable +10dB Meter Rescale Modes and a Switchable 'Peak' mode to Display Fast Transients Not Normally Seen on Conventional V.U.s.
- Dedicated Gain Reduction Meters On Each Band.
- Internal Low Hum Toroidal Linear Power Supply with Voltage Selector Switch.
- Classic Drawmer Build Quality with Rugged Steel Chassis and Aluminium Front Panel.



Intuitive Layout

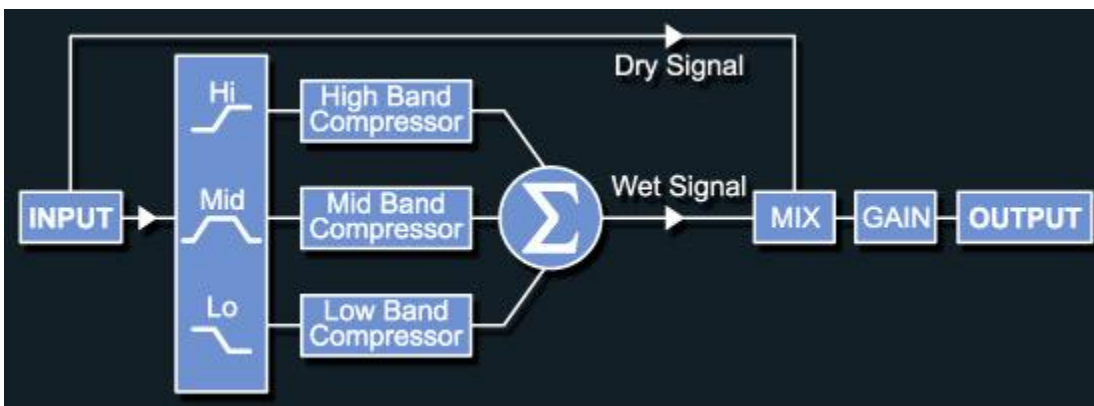
Multiband compressors can be intimidating and difficult to use due to the number of controls and poor lay out, with this in mind, the 1973 has been designed to be as simple, familiar and intuitive as possible whilst still giving complete control over the audio.

The front panel consists of three near identical compressor bands, flowing left to right, with the Variable Crossover Frequency knobs seperating them. To the right are the large, illuminated V.U. Meters, with Output controls underneath.



Mix Control - Pricisely Control the Amount of Compression Applied!

Incorporated into the 1973 is the 'Mix' Control. This acts like a 'parallel compression' effect that mixes the Wet (compressed) and Dry (original) signals to provide a simple and exact way of controlling the amount of compression used - all with the turn of a single knob.



One criticism of multiband compression is that it is possible to take the effect too far and ruin a mix - this is easily prevented with the 1973 by the use of the Mix control just by mixing in less of the wet signal and more dry. By the same token, the mix control can add more compression simply by adding more of the wet signal. It's that simple!

Drawmer 1978: Stereo Tone Shaping FET Compressor



The Drawmer 1978 builds on the success of the award winning 1973 multiband FET compressor and adorns an unparalleled array of controls to give complete mastering over your mix, and all in a deceptively simple 1U frame.

In addition to the usual Ratio, Threshold, Attack and Release controls, the 1978 features four character switches offering a wide range of compression flavours, as well as a variable saturation control to add harmonic distortion to the signal. Side chain functionality is also included with side chain insert points on both channels and a very comprehensive and flexible Side Chain EQ section which offers LF and HF controls with a choice of specific shapes and frequencies for precise frequency-conscious compression such as de-essing. A wet/mix control also allows you to blend the processed signal with the dry for parallel compression.

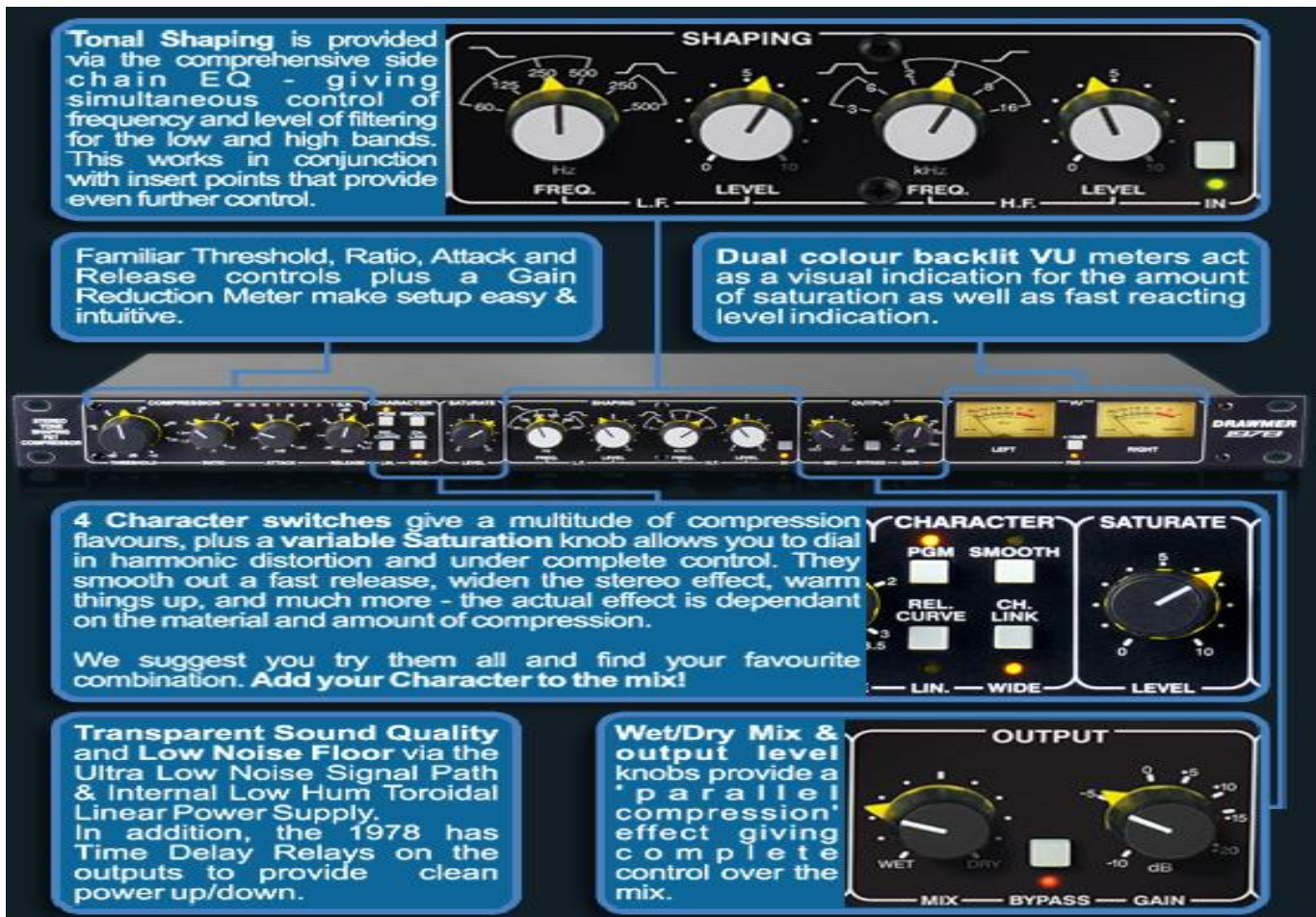
In addition, a fast reacting Dual colour backlit VU Meter is employed to provide a visual indication of the amount of saturation added. Time delay relays are incorporated into the outputs to provide clean power-up and down with no pops or bangs, and a low hum toroidal linear power supply. The Drawmer 1978 is a truly flexible compressor made in the UK with high-quality components.

The 1978 is a Buss Compressor like no other - compression with character, controlled distortion, tonal shaping, wet/dry mixing - others have tried but have never managed to build a compressor that is this versatile and yet intuitive. It's never been easier to get that elusive characteristic sound that sets you apart from the rest. Glue your mix, bring out the bass, control the highs, add warmth, distortion, smoothen, widen, sound less digital more analogue - and at a price that's right for even the smallest studio.

Features:

- Fast Reacting Stereo FET Design compressor with excellent Left/Right Tracking across the Full Range of compression and in a 1u rack mount housing.
- Threshold, Ratio, Attack and Release controls and Gain Reduction Metering provide familiar and intuitive control over the audio. Anyone that knows how to use a compressor can operate the 1978.
- 4 character switches provide a multitude of compression flavour combinations that allow the 1978 to take on the characteristics of other compressors.
- A Saturation knob allows you to dial in variable amounts of 2nd and 3rd harmonic distortion, and under complete control.
- Comprehensive side chain EQ giving simultaneous control of frequency and level of filtering for the low and high bands. This works in conjunction with the rear panel stereo insert points that provide even further control.
- Variable Wet/Dry Mix plus Output Gain Knobs give a 'Parallel Compression' function without the need for external mixing devices, providing Complete and Effortless Control over the amount of compression used and Output Levels.

- Two Analogue V.U. Meters with Switchable +10dB Meter Rescale Mode. These have additional dual colour backlighting that act as a visual indication for the amount of saturation.
- Time delay relays on outputs for clean power up/down.
- Internal Low Hum Toroidal Linear Power Supply with Voltage Selector Switch.
- Classic Drawmer Build Quality with Rugged Steel Chassis and Aluminium Front Panel.
- Designed and manufactured by Drawmer in the UK.



Mix Control - Precisely Control the Amount of Compression Applied!

Incorporated into the 1978 is the 'Mix' Control. This acts like a 'parallel compression' effect that mixes the Wet (compressed) and Dry (original) signals to provide a simple and exact way of controlling the amount of compression used - all with the turn of a single knob.



With the extensive controls of the 1978, such as saturation and tonal shaping, it could be possible to take the effects too far and ruin a mix - this is easily prevented by the use of the Mix control just by mixing in less of the wet signal and more dry. By the same token, the mix control can add more compression and character simply by adding more of the wet signal. It's that simple!

Drawmer MX30-Pro: Dual Gated Compressor Limiter



The MX30 Pro Gated/Comp/Limiter is a low cost professional quality dynamics processor.

Drawing on our many years experience in professional audio we have developed a series of lower-cost Drawmer dynamic signal processors, the MX Pro range. Aimed at the musician, project studio and live performer, who is determined not to compromise on quality, but have to work to a tighter budget. By using circuit elements drawn from existing top-of-the-line Drawmer products and by simplifying the control systems where possible, the MX Pro range is no less sophisticated than our other units, despite the price tag. As a result the inexperienced user gains the benefits of Drawmer quality and performance, combined with lower cost and simplicity of operation.

Operational control is split into three sections:- Gate, Compressor, Output:

- **'Programme Adaptive' Gate:** Used to remove unwanted noise below a pre-set level, each channel consists of a variable Threshold Gate incorporating Drawmer's 'Programme Adaptive' circuitry. Although quick and simple to operate, the gate's auto-circuitry continually optimises such parameters as Attack, Hold, Ratio and Release, completely eliminating 'chatter' when the signal is fluctuating on or around Threshold. Two LEDs show when the signal is 'above' or 'below' Threshold and a push button switch allows additional control of Release time. This design approach also retains all 'leading edge' information making the gate ideal for 'cleaning up' vocals or retaining the 'punch' on gated drums. Switching is provided for 'Fast' or 'Slow' release characteristics. The 'Fast' mode can be used for instruments with rapid decay times or for additional tightening of the gating effect. The 'Slow' mode is more suitable for vocals and instruments with longer decay times or can be used to smooth over rough fade outs. A single LED indicates gating action.
- **Soft Knee 'Auto Compressor' :** The gate is followed by a variable Threshold, variable Ratio, soft knee compressor with fully automatic Attack and Release. Large transients are controlled instantly whilst small signal variations are treated gently, retaining as much 'life' as possible and without generating unpredictable side effects. the MX30 Pro handles all compression levels with ease and displays the amount of compression on a high resolution Gain Reduction bargraph meter.
- **Output:** The Gain control is used to compensate for the amount of compression and brings the signal to the required output level as displayed by the output bargraph meter. A variable Threshold 'zero overshoot' limiter, essential for avoiding distortion when mastering to digital or speaker protection in a 'live' situation, adds the final polish to the signal by keeping control over signal peaks. The Limit threshold provides an absolute maximum peak level which no signal can pass. Fast transients are clipped instantly whilst more sustained peaks are dealt with by applying Gain Reduction, indicated by a single LED.
- **Gate Threshold:** This control sets the level below which gating takes place and may be set anywhere in the range of -70dB to +20dB. A green LED illuminates to show when the signal is above threshold (i.e. gate open) and a red LED illuminates when the signal is below Threshold (i.e. gate closed).

- **Release:** Either a Fast or Slow auto release contour may be selected depending on the material being processed. An LED indicates when Slow release status is engaged. Percussive material with little or no reverb is generally treated using the Fast release setting, whereas with slow decays or a significant amount of added reverb will usually respond better to the Slow release setting.
- **Compressor Threshold:** This determines the input level above which gain reduction will be applied and may be set anywhere in the range of -40dB to +20dB. Soft Knee compression takes place for signals exceeding the threshold level by up to 10dB above which level, conventional 'ratio' compression is applied.
- **Gain Reduction Bargraph Meter:** A nine segment LED bargraph meter continuously monitors the gain reduction applied by the compressor over a range of 0dB to 30dB.
- **Ratio:** Sets the final compression ratio that will be applied once the 10dB soft knee region is exceeded. The ratio may be continuously adjusted from 1.2:1 to infinity:1 allowing the possibility of true hard limiting. The higher the ratio setting the more compression takes place (eg. A ratio of 8:1 means that an 8dB increase in volume at the input will appear as a 1dB increase in volume at the output).
- **Stereo Link:** The unit can function as two independent gated/compressor/limiters or when 'link' mode is engaged for stereo use Channel 1 becomes the master, automatically duplicating its parameters across to Channel 2. In this mode the same degree of gain reduction is applied to both audio channels to prevent image shifting.
- **Output Gain:** The output level may be attenuated or amplified by up to 20dB to compensate for level changes caused by compression. This control comes directly before the Peak Limiter detector and this fact should be taken into account when setting the Peak Limiter threshold.
- **Peak Limit:** This control sets an absolute limit that the output signal will not be permitted to exceed. The limiter is 'zero response time' and controls peaks without any audible distortion. For transparent 'peak protection' the output gain control should be set to ensure that the Peak Limiter operates only occasionally. Alternatively, the unit can be driven into heavy limiting for creative effects.
- **Input/Output Bargraph Meter:** An eight segment LED bargraph level meter monitors the output signal level over a range of -20dB to +15dB. When Bypass is selected this meter reads input level.

Drawmer MX40-Pro: Four Channel Punch Gate



The MX40 Pro Punch Gate is a high performance, simple to use 1U four channel noise gate that offers the same extraordinary sonic character, ingenuity, and high technical specification that have made Drawmer the world standard in gating technology. The MX40 Pro is the first low cost, truly professional gate to offer the features and performance typical of much more expensive noise gates.

Drawing on our many years experience in professional audio we have developed a series of lower-cost Drawmer dynamic signal processors, the MX Pro range. Aimed at the musician, project studio and live performer, who is determined not to compromise on quality, but have to work to a tighter budget. By using circuit elements drawn from existing top-of-the-line Drawmer products and by simplifying the control systems where possible, the MX Pro range is no less sophisticated than our other units, despite the price tag. As a result the inexperienced user gains the benefits of Drawmer quality and performance, combined with lower cost and simplicity of operation.

The MX40 Pro features proprietary 'Peak Punch' circuitry which adds unique dynamic enhancement to the leading edge of percussive material, adding true 'punch' to the performance. The MX40 Pro also includes Drawmer's Frequency Conscious System (first introduced with the DS201 Dual Gate), which 'tunes' the gate to react only to a specific frequency band, dramatically improving gate operation. The MX40 Pro packs four channels of high power Drawmer gating into a single rack space, with controls and indicators designed to make set up faster and easier.

The Drawmer MX40 Pro Punch Gate offers improved signal definition in complex mixes by isolating desired signal from unwanted background noise. It is especially important in sound reinforcement and the recording of short term sounds such as percussion. The MX40 Pro Punch Gate Frequency Conscious System 'opens' the gate only when a signal exceeds the threshold you set within a specific and variable frequency band. This enables the gate to distinguish between a snare and a high hat, tom-toms versus bass drum etc. Drawmer's new Peak Punch™ circuitry further improves definition by dynamically enhancing the leading edge of transient signals immediately after gate opening, so percussive sounds 'punch' through the mix. The controls of the MX40 Pro are designed to reduce typical lengthy and complex gate set up. Only three rotary controls are needed per channel: 'Frequency Trigger' sets the frequency band the gate reacts to; 'Threshold' sets the level at which the gate opens; 'Release' determines how long before the gate closes after falling below the set Threshold level.

Push button options include Peak Punch On/Off, 'Frequency Trigger' On/Off, -20dB or -90dB Attenuation and Gate Bypass. The industry standard Drawmer red/yellow/green 'traffic light' LED display gives the user reliable indication of gate status. Special features include 'Key Listen' that enables the user to hear just the trigger signal for easier set-up. If Frequency Conscious operation (Frequency Trigger "On") is used, depressing Key Listen will enable the user to hear only the frequency band 'tuned' in on the Frequency Trigger rotary control. External Key allows the gate to be opened by an external signal. The MX40 Pro can also be set so Channel One triggers all other gate channels, and 'Slave Link' links Channel One and Two together and/or Three and Four.

Controls:

- **Threshold:** This rotary control sets the level at which the gate opens (or closes) and may be set anywhere between -60dB to +20dB. All signals below Threshold will be reduced by -20dB or -90dB, depending on the 'Range' control setting. All signals above threshold will pass through the gate.
- **LED Display:** Drawmer's familiar traffic light LEDs display envelope status. When the gate is closed (signal below the set Threshold level) - the red LED is illuminated. When the gate is open (signal above the set Threshold level) - the green and amber LEDs illuminate and the red LED is off. As the signal falls below the set Threshold level, the green LED will extinguish and the amber LED fades over the duration of the Release time.
- **Release:** The Release time may be set from 10mS to 4S. This control determines how long before the gate closes. Special logic circuits within the MX40 Pro incorporate 'envelope hold' constants that are variable with Release time settings. This is to prevent 'chatter' when processing signals that decay near Threshold.

- **Range:** This button determines how much gain reduction is applied when the gate is fully closed. A setting of -90dB effectively silences the signal completely when the gate is closed, while the -20dB setting allows the signal to pass through the gate with a 20dB decrease in gain.
- **Peak Punch:** Drawmer's proprietary Peak Punch™ circuitry adds very short term dynamic expansion to the leading edge of percussive material. Peak Punch™ has a near zero Attack time and enables gated signals to 'punch' through a mix without increasing long term signal level. The effect is one of greater signal definition of transient information. When Peak Punch is active an LED below the switch illuminates.
- **Bypass:** This enables individual channel Bypass for A/B comparison. The Bypass position routes the input signal to the output with no processing and is effectively a gate 'on/off' button. When in Bypass mode an LED below the switch illuminates.
- **Trigger Frequency:** The Trigger Frequency filter is variable from 50Hz to 8Khz and enables the user to specify a frequency band that the gate 'listens to', causing it to open or close. This feature makes the MX40 Pro 'frequency conscious' and enables the gate to react only to signals within a one octave band. The centre of that octave is determined by the frequency centre of the rotary Trigger Frequency control. This allows fast and simple set-up of frequency selective operation where unwanted signals are prevented from triggering the gate.
- **Key Listen:** Engaging this switch will enable the user to hear only that channel's trigger, or 'key'. The trigger can be the selected frequency band on the Trigger Frequency rotary control, or an external (key) signal. This makes set-up much faster and easier as you can 'tune' the gate while in Key Listen mode. An LED below the switch illuminates when in Key Listen mode.
- **Ext Key:** Engaging this switch will offer a choice of two functions. The gate will be opened by either: (1) An external key source (if an external key source is plugged into the Key Input jack socket on the rear panel). (2) Channel One (if no key source is plugged into the rear panel). This makes it possible for selected gate channels to be opened by a single source. An LED below the switch illuminates when External Key is selected.
- **Filter In:** This activates or deactivates the Frequency Conscious feature of the MX40 Pro, and activates the Trigger Frequency control. If filter is bypassed (off), then the gate threshold is full bandwidth.
- **Slave Link:** The Link buttons are located between odd/even channels, and when depressed cause the channel on the right (Channel 2 or 4) to be controlled by the left-hand channel (Channel 1 or 3). In linked mode, the red status LED beneath the Slave Link switch will be illuminated, and the Ext Key and Peak Punch LEDs of the slave channel will be extinguished. This indicates which controls of the slave channel are still operative.

Drawmer MX50-Pro: Dual Vocal De-Esser



The human voice is one of the most diverse signals ever encountered by engineers because it contains such large variations in level and harmonic structure. Getting the desired vocal sound can sometimes prove difficult. Setting the E.Q. to give the vocal sufficient 'definition' and 'cut' in the mix

can cause large sibilant peaks which often lead to severe distortion. The MX50 Pro 'Vocal' De-Esser solves these problems quickly and efficiently by reducing the level of the sibilant sounds whilst leaving the remainder of the signal unchanged.

The MX50 is a flexible, simple to set up dual De-Esser designed to fulfil the needs of the Recording Studio, Broadcast, Theatre and Live Sound Industries. Its classic application is to overcome the problems that can arise when sibilant sounds (S's and T's) are over-emphasised by the human voice, with such other applications as 'smoothing' a stereo mix, reducing string noise on acoustic guitars or breath noise on flutes, even refining cymbal and hi-hat sounds. Processing is achieved by adjusting just two control parameters, Frequency and De-Ess. The fully variable Frequency control operates from 800Hz to 8KHz encompassing the full sibilant range, including 'hard' sounding harmonics and other side-effects which can be generated when treble frequencies are boosted or enhanced. This is followed by the variable De-Ess which acts as a 'more' control giving up to 20dB of gain reduction at the selected frequency.

The MX50 Pro has two modes of operation:

- **Split Band de-essing:** Recommended for the majority of applications, this mode splits the audio spectrum into two bands with the split point being dictated by the position of the Frequency control. Only frequencies above the split point are attenuated.
- **Full Band de-essing:** A useful alternative where unobtrusive minimal processing is required. This mode reduces the total signal level in response to sibilant peaks in the selected frequency band.

Main Features and Controls:

- **Floating Threshold System:** This intelligent Drawmer circuitry has a floating Threshold that adapts to the dynamics and level of the incoming material, eliminating the need for a manual Threshold control and creating more natural results.
- **Air function:** As sibilance rarely occurs above 10KHz this feature adds back high frequency 'gloss' in excess of 12KHz preserving upper harmonics and increasing the transparency of operation.
- **Frequency:** This control selects the frequency band in which the de-esser operates. In Split Band mode this control also determines the split point above which gain reduction will take place. The control is continuously variable from 800Hz to 8KHz and covers the full sibilant range.
- **De-Ess:** Adjusts the amount of gain reduction that will take place when a sibilant sound has been detected. Up to a maximum of 20dB may be applied. This control uses an intelligent Floating Threshold circuitry which removes the need for a manual De-Ess Threshold control. One of the benefits of this design approach is that during quiet passages the sibilants are held to a level which is relative to the original signal.
- **Split Band De-Ess:** Split Band operation will only reduce the selected frequencies above the value set via the Frequency control. In most situations this mode, in conjunction with the Air function, offers the most transparent de-essing. Status LED illuminates when engaged.
- **Full Band De-Ess:** Full Band operation will reduce the total signal level in response to signals in the selected frequency band. Status LED illuminates when engaged.
- **Air:** The Air control enables frequencies above the sibilant band to be retained, greatly increasing transparency of the de-essing process. During normal use it is recommended to keep the Air function active for both Split Band and Full Band de-essing. Status LED illuminates when engaged.
- **Link:** Depressing this switch configures the unit for stereo operation where the average left/right signal level is used as the Floating Threshold. In linked mode the red status LED beneath the link switch will illuminate.

- **De-Ess Gain Reduction Display:** A nine segment LED bargraph shows how much gain reduction is being applied up to a maximum of 20dB. In Full Band mode gain reduction is applied to the whole signal, whilst in Split Band mode only frequencies above the value set on the frequency control are subject to gain reduction.
- **Bypass:** The Bypass position routes the input signal to the output with no processing. These switches are independant of any linking and will only bypass their respective channel. Status LED illuminates when engaged.

Drawmer MX60-Pro: Front End One



The MX60 Pro Front End One is a unique mic/line/instrument input channel in a single rack space providing high quality Drawmer processing prior to tape/hard disc recording. The MX60 is also ideally suited to project studio and live sound applications. Functioning as a studio grade mic pre-amp, Program Adaptive™ gate, de-esser, compressor, limiter, three band EQ and multi band tube saturation stage, the MX60 offers the user more options than competitive units currently available.

Drawing on our many years experience in professional audio we have developed a series of lower-cost Drawmer dynamic signal processors, the MX Pro range. Aimed at the musician, project studio and live performer, who is determined not to compromise on quality, but have to work to a tighter budget. By using circuit elements drawn from existing top-of-the-line Drawmer products and by simplifying the control systems where possible, the MX Pro range is no less sophisticated than our other units, despite the price tag. As a result the inexperienced user gains the benefits of Drawmer quality and performance, combined with lower cost and simplicity of operation.

Grass Roots - The MX60 draws its technology from the most successful of Drawmer products. The mic pre-amp features the same discrete component design found in the legendary Drawmer 1960, the de-esser is derived from the MX50, the VCA based compressor is similar to the MX30, while the peak limiter and gate can be tracked back to the DL241 compressor/limiter.

Controls:

- **Input Stage:** The input stage may be switched to accept mic, line, or instrument level signals - the XLR mic input has switchable 48V phantom power and phase reverse, while the line input is on both a balanced +4dB TRS jack and an unbalanced -10dB jack. A high impedance Instrument jack is located on the front panel for use with electric guitars, basses, synths and drum machines.
- **Program Adaptive™ Gate:** Drawmer's proprietary Program Adaptive™ circuitry means that all the time constants are automatically optimised for the material being processed. This enables

stable gating and eliminates 'chatter' around threshold. Controls via a single variable threshold and switchable fast/slow auto release.

- **De-Esser:** Floating threshold de-ess operation where the de-esser automatically and continually readjusts its own threshold level. The MX60 de-esser is almost completely automatic requiring the user only to select a switchable male or female setting and to adjust the amount of de-essing required. Only the sibilant sounds are subjected to gain reduction so that the lisping effect of simpler de-essers is avoided.
- **EQ:** High and low shelving sections as well as fully parametric mid range EQ with variable frequency, 'Q', and $\pm 18\text{dB}$ cut/boost.
- **Compressor:** High quality VCA compressor based on that of the MX30 and DL241. Both the attack and release times are Program Adaptive™ leaving the user with only ratio, threshold and make-up gain to adjust.
- **Tubesound:** Multi band 'tube saturation' allows users to create subtle warming, high frequency effects or out-and-out obvious effects via three separate, independently adjustable audio bands. Low settings on all bands enable replication of classic tube mic sounds.
- **Output:** The output stage includes a limiter with a preset threshold (+16dB) and a variable master fader with output bargraph metering which sets the overall output level from OFF to +15dB. A two stage soft/hard limiting approach has been adopted with yellow and red LEDs signifying soft (approaching limit point) and hard limiting (hitting limit point).

Drawmer SL22: Sound



Whether you need to protect your speakers, your hearing whilst listening to headphones or your premises license the Drawmer SL22 Sound Level Limiter is the perfect tool for the job. By eliminating the possibility of 'unauthorised' excessive sound pressure levels it offers strict level control and tremendous peace of mind to users in three distinct areas:



1 - SAFEGUARD YOUR HEARING

Conform to Noise at Work Regulations by controlling user's exposure to audio whilst at work to help prevent hearing damage.

Conform to Noise at Work Regulations by controlling the level of the dedicated headphone output to prevent hearing damage to anyone wearing headphones on a regular basis - DJ's, sound engineers in

recording studio's, students listening to audio via various media. Additional connectors on the rear can be used for remote data logging or to trigger external warning devices.



2 - CONFORM TO REGULATIONS

The precise calibration and volume controlling of the SL22 allows venues, such as clubs, theatres, pubs, schools, universities etc. to conform to Local Authority Noise Regulations.

The need to conform to Local Authority Regulations is absolutely imperative, none more so than in the area of noise control. Many products are on the market that claim to do the job but these often take the form of a crude switch, either turning off the power or disconnecting the speakers, both of which are very disruptive in any event. The SL22 is different, it controls the volume, but in a transparent, unobtrusive way, that you will struggle to notice. Not only is it responsive and versatile but does so in a secure manner meaning that tampering is extremely difficult. Other features include remote dimming of the volume, as well as the connection to a fire alarm system, reducing the volume automatically during a fire and allowing the alarm to be heard more clearly.



3 - PROTECT YOUR SPEAKERS

Prevents the damage to speaker chassis drivers and amplifier electronics by catching unwanted signals such as 'bangs' and 'pops'

Whether in a large arena with a p.a. system and multiple speakers, or a bar or theatre, there are few things more troublesome than blowing a speaker cone or amplifier electronics. The SL22 has been specifically designed to transparently catch those unwanted SPL's and protect your gear. Not only will it save money by reducing the cost of speaker repairs, but also reduce 'call-out' costs of sound system service/repair engineers, lower sound system 'down time' and the consequential loss of income, as well as the reputation of the venue.

The key features are as follows:

- Limited speaker and headphone outputs
- Once installed and calibrated completely eliminates the possibility of 'unauthorised' volume levels
- No sound quality loss even during protection processing
- Large LED level indication for 'at a glance' monitoring of signals and warnings
- Time delay relays on outputs for clean power up/down
- Fast, simple installation
- Tamper-proof plate limits access to settings
- A security label is supplied to further secure the calibration settings and show evidence of tampering

- Tamper-Proof bracket (available separately) to lock-in the XLRs and conform to Local Authority regulations.
- Reduces 'call-out' costs of sound system service/repair engineers, sound system 'down time' and the consequential loss of venue income, as well as the reputation of the venue.
- External control of Dim and Mute for connection to Fire Alarms or remote operation
- Trigger output when in PROTECT mode
- Logging inputs for both ALERT and PROTECT statuses

Benefiting from Drawmer's 30 years involvement in designing industry standard dynamic processing devices, and especially the experience gained from its sister product, the popular SP2120 Speaker Protector, the SL22 has been designed to be more versatile and feature rich but at the same time just as easy to set up.

The SL22 front panel features an integral security plate to ensure that adjustments to maximum volume levels are implemented by authorised personnel only. Once removed two front panel pre-sets are exposed and available for adjustment by the installer. The first calibrates the protect indication to the incoming audio and dictates the point at which 'protection' processing commences. The second sets the absolute volume level to which the sound system is allowed to perform. If the SL22 receives increased signal levels, the transparent 'protection' circuitry is activated which maintains the specified system volume level without degradation in sound quality. With the security plate replaced a security label can be placed across (supplied) to provide further security and show evidence of tampering with the settings. In addition, on the right side of the panel three LED indicators complement the simple setup with simple and 'at a glance' monitoring.



To the rear the difference between the SL22 and the SP2120 is just as apparent. In its development we liaised with and were approached by local authority commissioners, installation specialists and venue owners who all advised and recommended attributes to suit their own specific requirements, the result being the addition many more versatile features that so many other sound level limiters lack. As well as the standard input and output XLRs (that can be securely locked using the optional tamperproof bracket) the SL22 also features a limited headphone output, that works in the same manner as the XLR's, plus the ability to be controlled externally via a fire alarm or operator, and also connections to allow data logging of the SL22's operation, or external visual indication via a light on a wall, for example.



Drawmer SP2120 - Speaker Protector



The Drawmer SP2120 Speaker Protector offers both strict level control and tremendous peace of mind to the contractor, installer and venue in the knowledge that, as its name suggests, the 1U, two channel processor eliminates the possibility of 'unauthorised' excessive sound pressure levels on speaker systems (as caused by spikes and pops in the system, or by over-enthusiast djs/engineers) which could result in damage to both chassis drivers and amplifier electronics. In addition only the maintenance engineer and the venue manager hold a key. The unit also gives a wide variety of venues, such as clubs, theatres, pubs, schools, universities etc. the opportunity to comply with the local legislation regarding noise levels.

The key features are as follows:

- Key Holder access only.
- Takes only minutes to install.
- Tamper-Proof bracket (available separately) to lock-in the XLRs and conform to Local Authority regulations.
- Dual 16 segment Left/Right bargraphs for 'at a glance' level metering.
- 'Protection' processing 16 segment bargraph display.
- No sound quality loss even during heavy protection processing.
- Once installed and calibrated completely eliminates the possibility of 'unauthorised' volume levels.
- Eliminates sound system abuse and the resulting cost of chassis speaker re-cones, HF diaphragm replacements and amplifier repairs.
- Reduces 'call-out' costs of sound system service/repair engineers.
- Reduces sound system 'down time' and the consequential loss of venue income.
- Isolation transformer output option.

The SP2120 front panel features an integral security lock to ensure that adjustments to maximum volume levels are implemented by key holders only. In 'unlocked' mode two front panel pre-sets are exposed and available for adjustment by the installer. The first calibrates the 16 segment Left/Right bargraphs to the incoming audio and dictates the point at which 'protection' processing commences. The second sets the absolute volume level to which the sound system is allowed to perform. If the SP2120 receives increased signal levels, the transparent 'protection' circuitry is activated which maintains the specified system volume level without degradation in sound quality. The SP2120 greatly benefits from Drawmer's 25 years experience in designing industry standard dynamic processing devices. Its signal path combines a mixture of 'multiple time constant' circuitry and automatic gain control (AGC) which allow small overloads to sound louder – even though they're not.

Its concept and development was encouraged by Drawmer distributors and installers dissatisfied with other protection systems currently available. These often take the form of a crude switch, either turning off the power or disconnecting the speakers, both of which are 'disruptive' in any event.

Drawmer HQ: HQ - Precision Pre-Amp / DAC



Do you hear what we hear?

Our most versatile product, the HQ preamp and D-A converter straddles both the pro-audio and hi-fi markets, functioning in the pro audio market as a monitor controller, as well as serving as a source preamp in high-end hi-fi systems. The monitor preamp is possibly the most important piece of

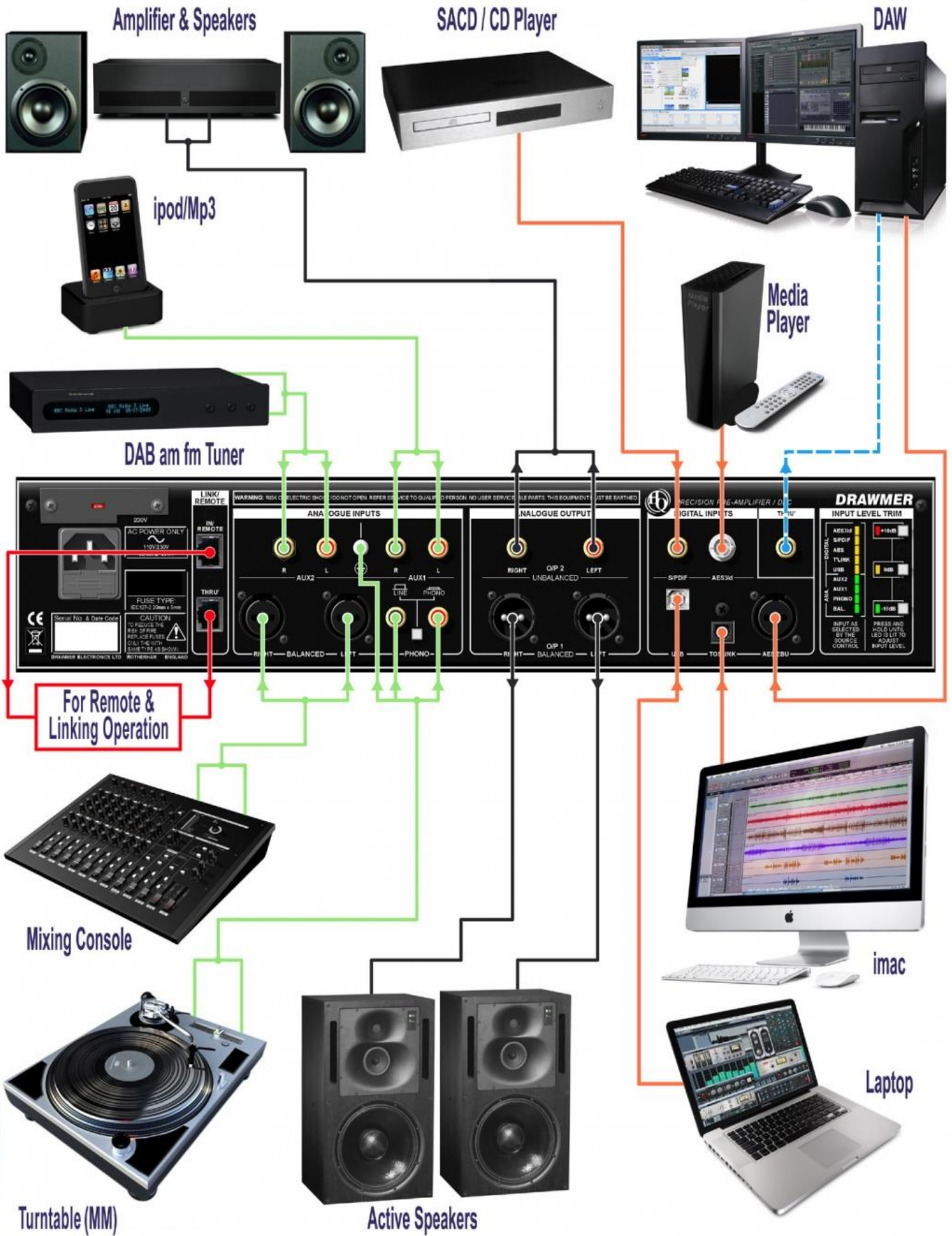
equipment for both audio professionals and Hi-Fi enthusiasts alike. It is the last piece of equipment before the speakers, so it requires zero coloration, precise balance, low noise, wide bandwidth and a wide variety of input sources.

There are three components to the accurate evaluation of audio - engineers pay a great deal of attention to both the choice of microphone and speakers. However the third component, the monitor pre-amp and digital-to-analogue conversion used to reference this material, is crucial and often overlooked. The Drawmer HQ is specifically designed to do that job - and to a highly accurate, precision-engineered standard. Likewise there are three aesthetically and functionally complimentary products that can be used independently or linked to provide multiple channels and remote operation. The three products are the HQ - stand-alone, with all controls on the front panel; the HQ-r - a desktop control surface for both the HQ and HQ-b; and the HQ-b - has no controls on the front panel but is operated by either the HQ or HQ-r. In this way several modular options are available to suit your specific requirements and setup, for example, in a studio several HQ-b's can be mounted in a rack but controlled from the desktop using the HQ-r.

Designed to act as a central hub in a studio, mastering room, reference library or any high-end listening environment, Drawmer's HQ facilitates fast switching between sources and outputs in multi-speaker setups. Analogue inputs accept audio on balanced XLRs and unbalanced phonos. In addition, separate stereo RIAA-corrected phono inputs are provided, so that turntables may be directly connected for restoration work or reference without the need for a separate phono pre-amp. The HQ also permits the connection of digital sources at up to 192kHz in AES format (via XLRs), Toslink (on an RCA jack) or AES3id (on a BNC connector), and a standard USB 'B'-type connector allows audio to be streamed at lower rates from a laptop. For the hi-fi enthusiast, the rack ears are removable, while for the rackmounting professional, the feet can be removed.

Each input source, whether in the analogue or digital domain, may be given its own input gain settings for optimum level-matching of the connected devices. Audio from mixing desks, turntables, digital audio workstations and DVD, Blu-ray or CD players may all be united within the HQ and sent to the balanced and unbalanced analogue outputs simultaneously. Digital sources at their original sample rate and bit depth can also be routed to a dedicated S/PDIF output.

So what you hear is what you get - precisely.



Features:

- SEAMLESS RELAY VOLUME CONTROL (SRVC™) - ACCURATE CHANNEL BALANCE TO 0.05dB
- STATE OF THE ART DAC (-100dB THD & NOISE AND -114dB DnR)
- ULTRA LOW CROSSTALK (>100dB @20Hz TO 20kHz)
- 4 ANALOGUE AND 5 DIGITAL SOURCES (WITH DAC TO 192KHZ/24BIT), WITH INDIVIDUAL GAIN SETTING. IT CAN SIMULTANEOUSLY CONNECT TO APPLE MAC, LAPTOP, MIXING CONSOLE, DAB FM TUNER, IPOD DOCK, MEDIA PLAYER, AUDIO WORKSTATION AND PHONO TURNTABLE PLUS A WHOLE HOST OF OTHER GEAR.
- INTELLIGENT SOURCE SELECT ALLOWS A-B COMPARISONS
- DIGITAL INPUTS TO 192kHz 24bit WITH JITTER REDUCTION RIAA INPUT FOR ACCURATE REPLAY OF VINYL
- SWITCHING FOR THREE DIFFERENT SPEAKER CONFIGURATIONS: SPEAKERS A, SPEAKERS B OR SPEAKERS A+B
- LINKING OPERATION FOR MULTI-CHANNEL SYSTEMS
- DUAL HEADPHONE OUTPUTS
- NORMAL OUTPUT LEVELS UP TO +18dBu BALANCED
- HOT OUTPUT LEVELS UP TO +28dBu BALANCED
- INTERNAL LINEAR POWER SUPPLY WITH MULTI-STAGE REGULATION

Drawmer HQ-b: Precision Pre-Amplifier / DAC Blank Module



The HQ-b expands on the HQ by offering a product that is identical in every way to the HQ, incorporating the exact same function a specifications, but has been designed to be controlled remotely, either from an HQ or the HQ-r remote and so lacks the controls of the HQ front panel. It is installed in the same way, has identical power and audio connection on the rear, and the same performance.

The HQ-b incorporates a linking system (via standard cat5e cables) that provides an easy means of building a monitor control/pre-amp system incorporating multiple HQ units. Several units can be linked together, to provide a distribution system, or a 5.1 / 7.1 surround setup with only one master control.

The Controls:

- **POWER:**
A rotary switch that turns the HQ-b on or off. When on the soft start procedure will begin - this will take a few seconds, during which time the HQ-b will not pass audio. Note that it is a hard powered switch, not standby, and so when in the off position the HQ will draw no mains power.
- **HEADPHONES:**
Two headphone sockets are provided that supply both headphones simultaneously. The volume is controlled by the main volume control level, in the same way as the analogue outputs. As factory standard the right headphone socket will mute these main outputs when plugged in, whilst the left socket leaves the outputs as is.
- **MUTE:**
The mute led will be lit whenever the relay attenuation volume control is prevented from passing audio.
- **REMOTE:**
Whenever a RJ45 cable is plugged into the 'In/Remote' socket on the rear of the unit the 'Remote' LED will light to show that the unit is being controlled elsewhere.

All other controls are performed remotely.

Drawmer HQ-r: Remote



The inclusion of the HQ-r remote takes the HQ to a new level of control by converting the high end pre-amplifier/DAC into a fully featured control surface for your analogue or digital mastering studio. The HQ Remote adds a mono/stereo switch, user-defined volume level presets, a digital master volume display, and Mute and 'intelligent' (level-dependent) Dim controls. The unit can also act as a master volume controller for multiple linked HQ units, in a 5.1 surround master volume control system that incorporates Drawmer's preamp and D-A conversion technology.

When the HQ Remote is plugged in, a red Status LED illuminates, the HQ front-panel controls are disabled, and all volume, muting and source-switching functions can be carried out from the HQ-r. The remote's large illuminated Volume control takes over the duties of the HQ's front-panel knob, and the input audio source is determined by nine backlit push-buttons, one for each of the HQ's five digital connections (AES, S/PDIF, AES3, TosLink, USB) and its four analogue stereo inputs (balanced XLRs, two auxiliary line inputs, and a further aux line input with a switchable RIAA for vinyl replay, which allows users to directly connect a turntable without the need for an external preamp). A trio of speaker selection buttons, marked 'A', 'B' and 'A/B', allows users to switch between the HQ's two sets of speaker connections, A and B, or drive both sets simultaneously, making instant monitor switching simple for mix referencing purposes.

Additional Mute and Mono buttons enhance the HQ's capabilities, the 'intelligent' Dim control sensibly reduces playback volume by an amount dependent on the current output level, and the three-figure digital volume display gives a gain readout accurate to within half a decibel. Two user-defined volume level presets may also be accessed via the P1 and P2 buttons, for comparison of output levels in environments where accuracy is crucial, such as mastering studios. Weighing a reassuring 0.8kg, the HQ Remote allows access to all the functions of the HQ Pre-Amp/DAC, plus many more, all from a solid, compact desktop unit.

Features:

- Remote operation and linking for multi-channel systems.
- Intelligent source select allows A-B comparisons.
- Illuminated for easy efficient operation.
- Compact and light weight form factor.
- Adjustable Preset Volume Levels for instant preferred listening levels.
- LED Display readout accurate in 0.5dB steps.
- Provides Dim, Mute and Mono controls, in addition to those found on the HQ.

Drawmer MC2.1: Monitor Controller

It is imperative that what you record is exactly what you hear - this is the philosophy that is at the heart of the design of the MC2.1 Monitor Controller.

With the Drawmer MC2.1 Monitor Controller incorporated into your system you combine the clarity, fidelity and transparency of the highest quality monitoring circuit with the complexity of a host of mix checking features. It is versatile and intuitive, but above everything else, where the Drawmer MC2.1 excels is in its accuracy and ability to faithfully reproduce what has been recorded.

The MC2.1 incorporates four inputs with three stereo balanced speaker outputs, plus a dedicated mono speaker/sub-woofer output each with individual left/right trims under the unit to provide complete control over level matching. The active circuit has been designed to faithfully produce the

audio signal whilst removing many of the problems that a passive circuit will bring. In addition, it has a host of mix checking features not often found on other controllers, such as individual left/right cut, as well as two separate headphone amplifiers and a talkback facility, making the MC2.1 a true engineers tool.

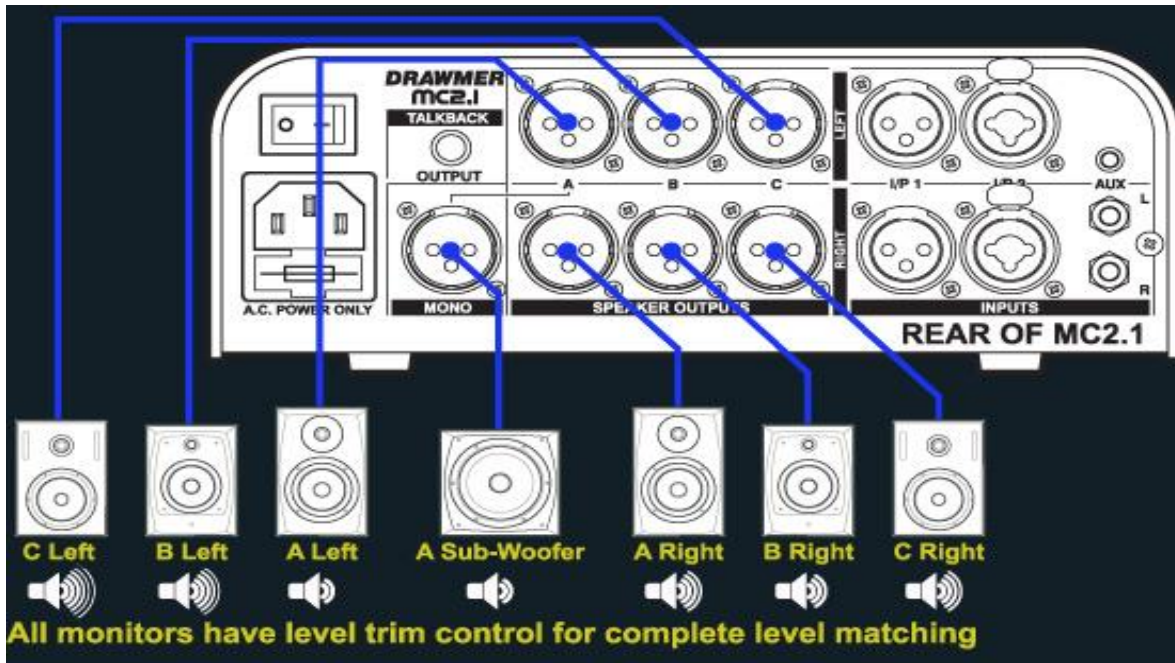
Whether you're mastering a cd/dvd, recording, checking a mix for balance and e.q, doing A/B comparisons, plus a multitude of other tasks, you'll have spent weeks designing the perfect studio environment and a fortune on active speakers, dynamics processors, various microphone and preamplifier combinations as well as a whole room full of other gear, one thing is for sure - a monitor controller is central to every recording setup and probably the most important element of the entire signal chain - providing the 'reference' listening signal that enables the user to achieve the optimal mic placements, the perfect balance and EQ etc. There is one thing that should always be absolutely guaranteed - that you can rely on the accuracy of your monitor controller.



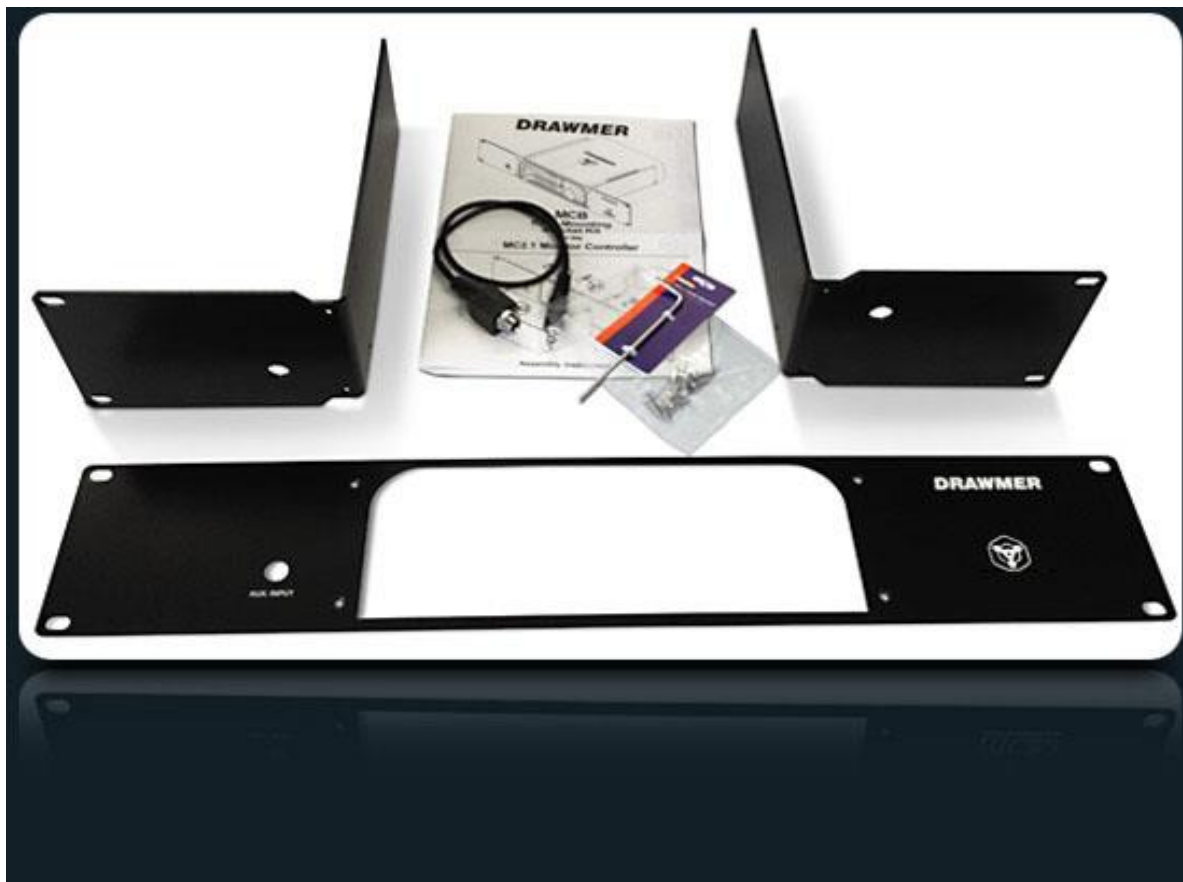


Features:

- Ultra low noise and transparent circuit design.
- Linear power supply with low hum toroidal transformer and internal voltage selector switch.
- 3 stereo balanced speaker outputs, plus a dedicated mono speaker/sub-woofer output. All have individual left & right trims under the unit to provide complete control over level matching.
- Timed relay protection on all speaker outputs to prevent power up/down bangs.
- Comprehensive mix checking facilities including Left/Right Cut, Phase Reverse, Mono, Dim, Mute.
- Paralleled custom quad pots on main and headphone level controls for excellent channel matching and smooth feel.
- Four inputs including balanced Neutrik XLR, balanced Neutrik XLR/JACK COMBI, and shared aux phono or 3.5mm jack.
- Two headphone amplifiers with individual level controls.
- Built in talk back microphone with level control, mono output jack and internal headphone routing.
- Rugged steel chasis and stylish brushed aluminium cover.
- Can be stacked and is rack mountable (with the MCB 2U mounting kit).
- Dimensions: L 272mm x W 215mm x H 81mm. Weight: 2.5kg.



The MCB Rack Mounting Kit contains two side panels/ears, a front fascia, and also a lead that brings the AUX input from the back of the MC2.1 to the front panel for easy access. Also included are the necessary screws, an assembly instruction manual and even an allen key.



Drawmer MC1.1: Monitor PreAmp

Fall in love with your vinyl again!

Hot on the heels of the Drawmer MC2.1 well known for its functionality and transparency comes its new sibling the MC1.1 Monitor Preamp, offering the same fantastic sound but with a revised feature set more suitable for a less complex post production booth or home use where multiple speaker setups are not permissible or even required, and with the addition of a new RIAA phono stage the MC1.1 is a great solution for your precious turntable setup.

The front panel is dominated by the two large, independent volume controls for the main line outs and the headphone amplifier, both incorporate a paralleled custom quad pot for excellent channel matching and the smoothest possible action. There are also individual switches for each input source and output section making an elegantly simple yet functional user interface.



Features:

- Ultra low noise and transparent circuit design.
- Linear power supply with low hum toroidal transformer and internal voltage selector switch.
- 3 Input Sources - Balanced XLR, MP3 Player 3.5mm Jack & Switchable Line/Phono (RIAA MM) RCA.
- Two switchable output stages, Balanced XLR and RCA.
- Mono Sub woofer output available simultaneous to balanced outs.
- Paralleled custom quad pots on main and headphone level controls for excellent channel matching and smooth feel.
- Independent volume controls for the main outputs and headphone section.
- Rugged steel chasis and stylish brushed aluminium cover.
- Can be stacked and is rack mountable (with the MCB 2U mounting kit).
- Dimensions: L 272mm x W 215mm x H 81mm. Weight: 2.5kg.
- Designed and manufactured by Drawmer in the UK.



The MCB - 2U Rack Mounting Kit is now available

The MCB Rack Mounting Kit contains two side panels/ears, a front fascia, and also a lead that brings the AUX input from the back of the MC1.1 to the front panel for easy access. Also included are the necessary screws, an assembly instruction manual and even an allen key.

Drawmer A2D2: AES Grade 1 Dual Output A/D Converter



The A2D2 gives you high-quality A/D conversion for any professional recording application. Microphones are analog, speakers are analog, storage is mostly a digital affair, and signal processing can reside in either the analog or digital realm, depending on whether the processing is software or hardware based. At some point in the signal path, you've got to get it to the digital world, and a high quality A/D converter is required - one which faithfully reproduces analog signals in the digital domain. The A2D2's Grade 1 AES-standard internal low-jitter clock generator and Burr Brown analog input stages ensure top-quality sound from the front end all the way through the subsequent conversion and processing. This means your signal is as pure as possible throughout the recording, editing, and mixing stages.

The A2D2 is a stereo A/D converter giving simultaneous dual stereo outputs at different selectable sample rates from 44.1kHz to 192kHz. This makes it possible to have a main output sample rates of up to 192kHz with another running at 44.1kHz to serve as a low resolution copy. Automatic dither generation maintains signal purity and a linear power supply minimizes interference with the internal clocks. Three word clock outputs allow you to use the A2D2 as a master clock generator.

Features:

- Stereo A/D converter.
- Simultaneous dual stereo outputs at different selectable sample rates from 44.1kHz to 192kHz.
- Possible to have a main output at 192kHz with another at 44.1kHz as a low resolution copy.
- Accurate 24 segment peak reading LED bar meters shows incoming signal level from -50dBfs to 0dBfs plus separate overload LEDs.
- Dual input configuration allows either a fully variable input level from -2dBu to +28dBu via front panel rotary controls or 24 turn precision presets for a fully calibrated input.
- Each digital output has selectable word length of 16 or 24 bits, with automatic dither generation.
- The internal low jitter clock generator is Grade 1 AES standard.
- External clock input.
- 3 word clock outputs to allow the A2D2 to act as master clock generator.
- Burr Brown analogue input stages.
- Linear power supply to minimise interference with the internal clocks.

Drawmer M-Clock Plus: AES Grade 1 Master Clock / Dual Sample Rate Converter



A High-stability Master Clock and Dual Sample Rate Converter. The M-Clock Plus is a high stability master clock generator offering clock rates from 44.1 to 192kHz, coupled to two sample rate converters, which allow material to be simultaneously re-sampled and synchronised to the selected high precision clock.

In addition to the internal clocks, M-Clock Plus can sync to either external word clock or clocks from AES/EBU signals. Precision clock frequency measurement and display indicates the exact frequency of the selected clock, whether internal or external, to an accuracy of 2ppm.

Ten word clock outputs

The M-Clock Plus has a total of ten word clock outputs, so it's ready to handle even the most complex systems. Eight outputs are located at the rear and two are on the front panel for convenient access.

Various format and sample rate conversion possibilities

M-Clock Plus has an external word clock input and an AES11 input which retrieves the clock from an AES audio signal. Plus, each sample rate converter has selectable AES, SPDIF or TOSLINK inputs, with simultaneous AES, SPDIF and TOSLINK outputs for many format and sample rate conversion options.

Convenient display information

The M-Clock Plus' precision clock frequency measurement and 16 character blue LCD display indicates the exact frequency of the selected clock up to 768 kHz, whether internal or external, to an accuracy of 2ppm or 2 microseconds. Display modes include ppm, \pm ppm & % pull up/down for video users.

Features:

- Internal clock generator: 44.1, 48, 88.2, 96, 176.4 and 192kHz. ± 1 PPM accuracy (AES Grade 1)
- External clock inputs: BNC word clock, AES11
- Sample Rate Converter inputs are selectable AES/EBU (XLR), S/PDIF Coax (RCA) and S/PDIF optical (TOSLink). Outputs are simultaneous AES/EBU, S/PDIF Coax, and S/PDIF optical. Output word length is selectable between 24-bit and 16-bit dithered.

- One set of sample rate converter inputs and two BNC word clock outputs are located on the front panel for convenient connection of visiting equipment.
- Word clock outputs: Ten BNC, two AES11 XLR, two AES11 RCA
- Power Supply: Universal, 85 to 250 VAC, 50-60 Hz
- Dimensions: 1 rack unit / 44mm(h) x 482mm(w) x 145mm(d) / 1.75" (h) x 19" (w) x 5.7" (d)
- Weight: 2.02 kg / 4.45 lb

Drawmer M-Clock Lite: AES Grade 1 Master Clock



Plus, the name of the M-Clock Lite should not fool you - this is a professional, high-stability master clock generator, which is forward compatible with high speed clocks predicted for the future. The M-Clock Lite is simply streamlined, providing a simple, quality clock generator - without surplus features many studios will never need. 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:

- **High-stability and efficient:**
Many clocks are complicated devices with many added features, which although useful, may be surplus to requirements. The M-Clock Lite is designed to effectively meet the requirements of most studios. The high-stability master clock offers clock rates of 44.1, 48, 88.2, 96, 176.4, 192, 352.8, and 384kHz at extremely low jitter.
- **Ten outputs with two convenient front-panel outs**
The M-Clock Lite provides ten outputs. Eight are located at the rear of the device while two are on the front panel for conveniently connecting any portable equipment.
- **Handy external clock input**
The M-Clock Lite incorporates an external clock input so you can easily select an alternative clock source - without having to waste time re-routing all of your clock cables.

Dramwer D-Clock: Clock Measurement & Distribution



Digital audio facilities often require a number of clock sources, which are used to synchronise outboard processors to the system clock rate using external clock inputs. The Drawmer D-Clock is a dual input, twenty 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.

It has both AES/EBU and BNC word clock inputs featuring a zero latency lothrough output with switchable high impedance to maintain the correct level of the digital signal for onward distribution. Sixteen BNC clock outputs are situated on the rear panel with a further four BNC clock outputs on the front panel for quick patching to other digital devices.

The wordclock outputs can be fed from the wordclock input at any sample rate between 32KHz and 768KHz or derived from an AES11 input or stripped from an AES3 audio signal at any sample rate between 32KHz and 192KHz. Using an audio signal to provide the clock means even products without a wordclock output, such as some analogue to digital converters, or one of the many mic pre-amplifiers with internal A/D conversion but no word clock output, can be the master wordclock source for the whole digital studio.

Features Include:

- 2 in x 20 out Clock Measurement and Distribution Amplifier.
- 16 character blue LCD display providing a reference measurement of the incoming sample rate.
- Measures incoming sample frequencies up to 768 kHz to an accuracy of 2ppm or 2 microseconds.
- Display modes: ppm, \pm ppm & % pull up/down for video users.
- Inputs: BNC with zero latency, 33 Ohms impedance.
- AES with with zero latency lothrough.

- Outputs: BNC loopthrough / AES loopthrough.
- Universal voltage filtered mains power input.

Drawmer D-Clock-R

D-Clock-R - Dual Redundant Clock Distribution That You Can Depend Upon Time & Time Again



DESIGNED FOR LIVE & BROADCAST ENVIRONMENTS

Expanding on the renowned D-Clock in providing word clock measurement and distribution, the D-Clock-R has been developed 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 incorporates dual redundancy for both the power supplies and also the auto-sensing clock inputs, ensuring that the show will go on regardless of technical difficulties.

Features include:

- **Dual Redundant Power Supply via 2 x universal voltage filtered mains power inlets for continuous operation & reliability.**

The D-Clock-R is fitted with two identical and independent power supply units, providing Dual Redundancy. In situations where it is critical that power must be maintained the load is shared between the two supplies, however, should power to one fail the D-Clock-R will still run perfectly well on either.

- **LCD Display with 3 sample rate measurement modes and accurate to 2ppm.**

A 16 character blue LCD display provides a reference measurement of 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.

- **Auto-Sensing Dual Redundant WordClock/AES3id BNC Inputs provide continuous operation and added dependability.**

Two inputs are provided, a default and auxiliary, capable of locking on to both word clock and

AES-3id, with the source automatically selected depending on the type and quality of the signal. Twelve BNC clock outputs are situated on the rear panel with a further four on the front panel for quick patching to other digital devices.

