ADR Compex F760X RS

Analogue Compressor

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Reviews : Processor

As another classic analogue processor is resurrected, we ask what made it so special, and find out how faithful the latest incarnation is to the original.

Hugh Robjohns

Throughout the 1960s, '70s and '80s British manufacturers Audio Design (Recording), now called Audio Design Reading, enjoyed a phenomenal reputation for class-leading audio signal processors. Their now-classic F760X RS 'Compex' dates from the very late '60s. It was an elaborate and incredibly versatile compressor-limiter-expander, which employed discrete transistor electronics, with a single FET gain-reduction device in a form that ADR called a 'vari-loss amplifier'. FET-based compressors were popular back then, but what made the F760X unique was the way in which this FET was driven simultaneously by the combined control signals from three separate side-chains (limiter, compressor and expander).

Compex Reissue

The F760X RS Compex reissue is built in America by a small company called Q2 Audio, run by owner Tim Mead from the American equivalent of a British shed — much like ADR'sown humble origins — and bringing this re-issue to market has apparently taken five years of painstaking work, with the full support and co-operation of Audio Design (Reading) throughout. ADR are also looking after sales and support of this unit for UK customers, while world-wide distribution and support is through Vintage King in the USA.

A lot of time was spent testing and choosing between different passive components in order to make sure that this reissue retains all of the sonic character for which the original was famed. The audio signal path and side-chain processing circuitry is completely faithful to the version that ADR were building in the late '80s, although some aspects have been updated to improve flexibility and long-term stability. The mechanical construction has also been revised to make it easier to build and much more reliable. One useful new feature incorporated in this revised design is the inclusion of external side-chain access, configurable in either the compressor or gate side-chains via internal jumpers.

The reissue employs a mix of conventional and surface-mount components, which has allowed the electronics to be condensed onto a single main PCB for each channel. This approach makes it much easier to manufacturer the F760X RS and means it will be more reliable in use. (The original Compex often suffered reliability issues, mostly because of dirty edge-connectors on each channel's set of three separate circuit cards which plugged into a motherboard.) Two smaller front-panel boards carry the operational controls, and the open-frame carbon potentiometers of the original, which were prone to becoming dirty and noisy, have been replaced with modern conductive-plastic ones. Another minor change was enforced because the original SIFAM meters are no longer available. The replacements are very similar in appearance and have noticeably superior ballistics. The incandescent bulbs of the original have also been replaced with LEDs, but you'd have to look very closely to tell this reissue apart from an original. The striking blue 'Hammerite' paint finish on the case helps to convey a vintage feel too!

As standard, the F760X RS audio interfacing is all unbalanced, as it was on the original, even though the audio connections are via XLRs. Apparently, building in electronically balanced I/O was considered but the market feedback was that the re-issue should stick to the original arrangement. High-quality input and output transformers can be specified as a cost-option to provide floating, balanced inputs and outputs, if preferred.

Overview

Following exactly the same arrangement as the '80s revision, the front-panel layout is fairly logical despite the complexity, and colour-coding is used to aid navigation. For example, the compressor controls are

ADRCompex £2398

pros

Faithful and approved reissue of the classic Compex design.
Modern construction techniques improve reliability.
Added side-chain inserts.
Excellent build quality and attention to detail.

cons

Operation is more complicated than most modern dynamics devices.
The use of unbalanced XLRs has the potential to confuse.
Side-chain insert socket wired in reverse compared with most devices.
Manual could be less intimidating.

summary

An excellent reissue of the '70s classic Compex compressor-limiter-expander, in which all three dynamic processing elements can be used simultaneously. Quirky to operate, and with traps for the unwary, the F760X RS is a very flexible and powerful processor which played a key part in the sound of many '70s and '80s hit records.

information

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labelled in orange and expander controls in green, the more general ones being white. All are very readable. The knobs are also colour-coded (ADR maintained consistent allocation of knob colours and functions from 1972!) with black caps on the level controls, green for release time constants, yellow for thresholds, blue for ratio and red for range. The black, fluted knob bodies also have yellow pointers attached to their bases, to indicate their positions very clearly.

Each channel boasts 13 separate controls, including individual channel input- and output-level knobs with an in/out toggle switch positioned neatly between them. This bypasses the input amplifier and FET gain cell, as well as the input and output level controls, but retains the output line-driver circuitry.

In addition to the individual channel level trims, two large knobs provide ganged-stereo input and output levels.In stereo applications, the individual channel input and output controls would typically be set to maximum and all level adjustments made with the stereo controls (the channel and stereo controls are actually wired in series with each other). For independent channel operation, the stereo controls would normally be set to maximum and the individual channel controls used instead.


The reissue's external side-chain inputs are a useful addition to the original design.

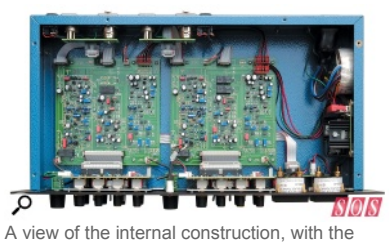
A toggle switch under the gain-reduction meters provides a stereo-coupling mode, combining the control voltages generated by the compressor and expander side-chains. This ensures equal gain-reduction in both channels and therefore no unwanted image shifts. However, the limiter side-chains remain completely independent at all times, because the brief attenuation of individual transients on each channel doesn't create noticeable image shifts, and dealing with high transients independently just works better. Even with the stereo coupling mode selected, it's necessary to adjust all the controls of both channels to identical settings for accurate stereo operation.

The limiter is engaged with a three-way toggle switch (Off, On, or On-with-Pre-emphasis). The limiter ratio is fixed at 100:1 and, as the threshold is fixed internally, the input level control determines how much of the signal exceeds the fixed limit threshold, while the maximum (limited) level apparent at the output is adjusted by turning the output control down. This allows the limit threshold to be adjusted to any desired level below +14dBu. (The maximum output level before clipping is +18dBu.) This limiter section was designed with broadcasters in mind, and has an extremely fast attack (below 250µs) with minimal overshoot. This can result in audible transient distortion (heard as clicking) with some audio programme material, so it needs to be used with some care. The release time is fixed at 250ms.

The compressor section's four controls comprise three gold-plated ELMA rotary switches and a toggle switch. The threshold is adjustable in 2dB steps between 0 and -20 dB, relative to the limiter's threshold, and the ratio's five settings are 1:1, 2:1, 3:1, 5:1, 10:1, and 20:1. The F760X has a progressive, soft-knee action, and the ratio slope calibration is only accurate when the gain reduction reaches 15dB or more. This means that the slope is less than that marked on the control knob for small amounts of gain reduction, which might be worth bearing in mind for critical work.

The attack time is set on a toggle switch (250µs, 2.5ms and 25ms), while the release is adjusted with another rotary switch in eight steps between 25ms and 3.2 seconds. Usefully, the last switch position provides a very effective 'auto' setting which employs a dual time-constant. In this mode, transient peaks more than 6dB above the threshold experience a very fast recovery, which reverts to a much longer recovery time when it falls below 6dB over the threshold. This minimises the noise-pumping or punched-hole artifacts that would otherwise result from a single fast or slow (respectively) release time. Like the limiter, the fastest compressor attack-time option, at 250µs, is very fast indeed and can result in transient distortion with some material. There is also a minor operational trap in that the slowest attack time is provided at the centre position of the toggle switch.

The expander section's three rotary controls are all normal potentiometers rather than switches, and are used in conjunction with two toggle switches. The expander has a fixed 1:2 slope with an adjustable 20dB attenuation range (after which the slope reverts to linear 1:1). The Threshold control is scaled simply between 'Hi' and 'Lo' extremes (-40 to +14 dBu), while the release control is marked only with 'F' and 'S', which equate to 25ms and 5s, respectively. As with the compressor section, a toggle switch adjusts theattack time (20µs, 2ms or 40ms), while the other selects between Off, Gate and Expander modes. Again, the fastest attack is super-fast and can result in a click with some material. While this is often unwanted, it can be a helpful characteristic when gating drums. The ratio increases to 1:20 when switched to the gate mode.


A view of the internal construction, with the mains transformer and linear PSU on the right-hand side, and a single main circuit board for each channel. The components associated with each of the three separate cards used in

In Use

The F760X RS has a reputation for being difficult to use and set up, although I never really found that in practice myself. It's certainly an unusual device and can be intimidating at first, simply because of the large number of rotary controls,

the original are arranged within their own sections on the PCB, the audio I/O circuitry being in the left-most section.

switches and indicator lights. The manual doesn't really help either, as it's basically a re-print of the technical manual — dating from June 1974, and complete with the original typos! While I approve of the authenticity, it's likely to scare quite a lot of users. Professional studio engineers were considerably more technically minded in the '70s than typical project-studio owners are today, and the art of writing approachable manuals has improved over the years. These points are both obvious when you start reading the 'Operating Procedure: Quick Start' instructions!

Importantly, since the compressor and expander thresholds are both related to the fixed peak-limit threshold, it's vital to establish a good gain structure through the Compex to optimise the signal-to-noise ratio (SNR). The technical performance is appropriate for the age of the design, with an SNR of about 80dB when set up correctly, and distortion around 0.05 percent. Mis-setting the gain structure quickly compromises the technical performance and makes it very hard to achieve good results in normal use. Presumably, this is where the reputation of being 'difficult to use' comes from, but the setup technique is actually very simple: with the expander/gate switched off, the compressor set to 1:1 (effectively, off), and the limiter turned on, the input control is advanced until the gain-reduction meter shows a hint of attenuation and the red limit lights start to flash, indicating that signal is just exceeding the limiter threshold. This establishes the limited signal level.

The output-level control can then be increased to set the required peak level into the following equipment. Once set, this doesn't usually need to be adjusted, but it must be remembered that if the limiter is active the output level will never exceed +14dBu, and even with the limiter switched off the unit will clip at +18dBu. This maximum peak level was fine for the UK's analogue broadcast market in the 1970s and '80s, but may appear to lack headroom in some modern digital environments that expect to clip at +24dBu. The transformer I/O option increases the maximum output to +22dBu.

In normal operation, the input control can usually be left alone too, and the compressor and expander threshold controls are employed to determine the amount of processing in the usual way. However, it may occasionally be necessary to raise or lower the input control if the 20dB threshold control-ranges prove inadequate to achieve a specific effect.

I always found it easiest to adjust the compressor's threshold on the F760X (and/or input level control) with the limiter switched in, as the flashing limit lights provide an informative peak-level reference. Since the compressor and limit side-chains are summed together, introducing some compression will inherently reduce the amount of signal exceeding the peak limiter's threshold, especially if a fast attack time is selected, so the limit lights will flash less often as the amount of compression is increased. Once the compressor is working as required, I normally switch the limiter off (assuming I don't need it), and fine-tune the compressor ratio and threshold by ear.

One of the features that made the Compex unique was the ability to use compression and expansion simultaneously, allowing a signal to be constrained when it gets loud, with any background noise attenuated in the gaps, all within one unit. This, though, means that the gain-reduction needle thrashes about far more than that of a conventional compressor. A really loud signal attenuated by the limiter results in the gain-reduction meter rising and the red limit light being illuminated. As the level falls the limit light will go out, but some gain reduction will still be applied by the compressor and be shown on the meter. Once the signal level is below the compression threshold the gain-reduction meter should sit at zero but, if the signal level is below the expander threshold some gain reduction will be re-applied and consequently that meter needle starts to rise again! To help clarify what's going on, green lights below the meter illuminate when the expander or gate sections are active. So, the meter can get quite busy, and I noticed that the needles in this re-issue flick back and forth to transients much faster than the original's Sifam meters.

It's much easier to set up the expand mode with the compressor section turned off (and vice versa), to simplify the gain-reduction meter indication if nothing else! Once set roughly as required, the compressor can be re-engaged and the settings fine-tuned by ear. Since the expander's side-chain is derived from the input rather than the output, the expander and compressor thresholds don't interact. However, when switched into the gate mode (which derives its side-chain signal from the Compex output), it's important to optimise the signal level through the limiter/compressor sections before adjusting the gate threshold. Another little trap for the unwary!

The F760X-RS is without doubt a complicated beast: it's a real 'engineer's compressor', in that you really do need to understand how it's designed to work, and to recognise its operational quirks, if you're to get the best out of it. Given the Compex's sensitivity to its gain structure, its unusually fast attack and release options, and three separate dynamics processing chains potentially all working simultaneously, it's extremely easy to make the F760X RS sound nasty. Introducing transient or waveform distortion through over-fast attack and release times (which produces clipping-type noises) easily fools the unwary into thinking the gain structure is wrong. So if you want to turn one knob to adjust the amount of 'squash', this is definitely not the right box for you! However, the steep learning curve is rewarded by the Compex's sheer versatility and impressive sonic capabilities, and this complexity and flexibility is precisely what makes this device such a special, unique and aurally impressive unit in the right hands.

You can hear the Compex in action on countless hit records made in the '70s and '80s on both sides of the Atlantic, and it's most often praised for helping to create the huge drum sounds on records like Led Zeppelin's 'When the Levee Breaks'. The Compex does big, punchy drums extremely well thanks to its very fast attack and release time options, and it was routinely used on room mics and drum buses in many studios. Slower attack times can be used to make a wide range of instruments sound more dense and punchy too, but it can also provide subtle and transparent compression when needed. I used it a lot on vocals and delicate percussive instruments like pianos and acoustic guitars.

The uber-fast peak limiter can sound a bit edgy — even brutal — with delicate sources, but can also be effective for adding character to transient-rich instruments. In general, I found I didn't use it very much because it often sounded a little heavy-handed, but it's useful to have (and is critical in setting the Compex up properly, of course). The compressor can be used as a limiter if necessary anyway, and the slower attack-time options employed avoid transient distortion, which can be prevalent in the limiter.

Using gentler compression ratios with modest amounts of gain reduction allows the Compex to provide sublime soft-knee bus compression for glueing a track together, and if the slowest attack time is used it retains nice crisp transient edges, sounding a little bit like parallel compression. The auto-release mode on the compressor is also an excellent feature. Auto-recovery is a common facility today, but it was an innovative feature in the 70s, and the two-stage recovery in the F760X RS works extremely well.

In the days of tape recorders and noisy mic preamps, expanders were employed routinely to reduce the audibility of unwanted noise and crosstalk. Today, with most project studios having less than perfect noise isolation and sharing the recording space with computers, a good expander is useful in minimising the audibility of computer fans and poor room acoustics. The F760X RS integrates compression and expansion very well, and combining the two on a slightly noisy or ambient vocal track can really tighten things up nicely, with the expander helping to counteract the effect of the compressor's gain make-up raising the ambient noise. It can take a little juggling to optimise the settings, but it's well worth the trouble.

The stereo matching wasn't quite as accurate as I'd have liked, although it was never more than 0.7dB adrift and could be corrected to an extent by tweaking the individual channel level controls, and there are a couple of issues that bother me concerning the interfacing. I understand why it was decided to replicate the unbalanced nature of the original, but most equipment today doesn't have the transformer-balanced inputs and outputs that pervaded equipment in the '60s and '70s. Moreover, modern solid-state equipment doesn't always like being connected to unbalanced devices, and there will often be unhelpful 6dB level shifts when the interface formats are mixed. Offering transformer I/O as an option overcomes these issues but inevitably makes an expensive product even more expensive, and I'd urge Q2 Audio to offer simple solid-state balanced input and output buffers as a no-cost option. Better still, fit them as standard with a rear-panel switch to selected balanced or unbalanced I/O modes. This could be done very easily and with negligible effect on production costs or profit margins, but would make interfacing a lot less problematic for the end user.

Secondly, while the side-chain inserts are very welcome additions, and especially the configurability for compressor or expander paths, the review model's unbalanced insert sockets were wired in the opposite way to almost every other product on the market today. Instead of conforming with the de facto standard of tip-send, ring-return, the F760X RS reissue requires the input and output leads of a standard Y-cord to be swapped over. That may not be that big a deal in practical terms, but it's an unnecessary source of user confusion. Ian Harley at ADR in the UK is aware of this issue and tells me he's happy to modify the internal wiring to conform with the normal arrangement on request.

I used the original Compex a lot during my early BBC career in the 1980s, and loved its enormous versatility and the broad range of effects it could produce, from subtle transparency to heavy control. Being able to compress and expand at the same time was a very useful feature in the days of tape but is just as useful today, when a recorded source doesn't have as quiet a background as one might like. ADR's gate technology was ahead of its time too, and the gate mode makes the F760X an even more useful tool in the project studio.

If I had to have just one dynamics processor it's hard to think of anything better than a Compex — and for that reason Q2's introduction of this superb re-issue is very welcome indeed. I understand that the company are also considering releasing a signal-channel 500-Series ('API Lunchbox') version of the Compex — which would in effect be a modern take on ADR's original 760X-N modules — and maybe even an F769X-R Vocal Stressor, too, in the future. I'm quite certain both would be very popular with professionals and project studios alike. In the meantime, I'm extremely impressed with the build quality, the sound, and the sheer flexibility of this terrific F760X RS re-issue, and recommend it enthusiastically to anyone willing to invest the effort to master it.

Alternatives

The Empirical Labs Distressor EL8S (two matched Distressor EL8 units) costs a similar amount and shares similar bus-compressor applications, but it lacks the expander/gate functionality and isn't as fast as the Compex. SSL's 500-series and X-rack Dynamics modules offer both compressors and expanders in one unit, and cost less than the Compex, but require the additional cost of a rack frame. The Aphex

Compellor 320D is another more affordable alternative, but nothing else I can think of which is currently available offers the simultaneous compression, limiting, and expansion/gate features, the controllability, the unique system architecture, or the sonic range of the Compex.

Audio Design (Recording) History

Audio & Design (Recording) started in the mid 1960s and became a leading British manufacturer of audio signal-processing equipment for the music and broadcast industries, acquiring quite a reputation on both sides of the Atlantic for their high-quality dynamics processors, equalisers and other outboard processors, which used mostly discrete transistor-based circuitry. The company's SCAMP modular processor system, introduced in the late '70s, was the conceptual forerunner of the 500-series 'Lunchbox' format which is so popular today, and SCAMP racks became ubiquitous in control rooms for many years. In fact, they only really dropped out of fashion when large mixing consoles started toinclude elaborate equalisation and dynamics processing in every channel module as standard.

ADR were amongst the early pioneers in the digital-audio revolution in the 1980s, and offered professionalised versions of Sony's early consumer digital recorders, for example, and a clever compact digital mixing console (I have one and still use it regularly!). Today, the company have a slightly different name (Audio Design Reading Ltd), and have evolved into a systems installer and consultancy for the broadcast IT market. However, they still manufacturer professional audio equipment, including the excellent SynchroGenius master clock unit (reviewed in SOS June 2010), and the DMA2 digital mic amp (SOS January 2002).

This is an advert from 1972 (Studio Sound again), showing the first incarnation of the F760X-N limiter-compressor-expander. This single-channel module was intended for integration within a sound console.

Technology

In the original model, the circuitry was spread across three plug-in boards known as 'ABC' cards. The compressor side-chain, gain-reduction meter driver, and control-voltage summer were on the 'A' board; the input and output buffers, FET gain cell, and limiter side-chain were on the 'B' board; and the expander side-chain was on the 'C' board. In the reissue all of this circuitry is mounted on one board, but the manual schematics still detail this original arrangement.

The linear power-supply circuitry and a modest toroidal transformer are mounted on the right-hand side-wall of the case, and all of the audio and side-chain circuitry runs on a single-sided 24V DC power rail. This was quite standard for discrete-transistor audio equipment of the time; the classic Neve consoles also ran on single-sided 24V rails, for example. The channel in-out, compressor on-off, and expander on-off switching are all performed by sealed relays powered from a second, separate power rail, which also supplies the indicator lights.

The audio signal path through the Compex is extremely short. The unbalanced input signal is connected to a simple three-transistor amplifier providing 34dB of gain — essentially the make-up gain element of a normal compressor. The 'vari-loss' FET gain cell is arranged as a shunt attenuator (routing variable amounts of signal to ground) located directly at the input of this amplifier stage. During factory calibration the FET is biased or 'pinched off' to provide 4dB of gain reduction at rest, and the channel in-out relay inserts 4dB of attenuation to maintain unity gain through the unit.

The unity-gain line amp driving the unbalanced output involves just four transistors, with the output pair in a push-pull configuration. So that's just seven active devices making up the entire audio signal path. Compare that with the 28 active elements inside a single NE5534 op-amp!

A P-channel 2N3820 FET is used in the Compex's gain cell, which is an unusual choice, and it's carefully selected and matched with that of the partnering channel to ensure accurate tracking. To minimise the third-harmonic distortion associated with FET attenuators, ADR developed a clever technique where some of the AC audio signal is fed into the FET gate along with the DC control voltage.

The limiter, compressor and gate side-chains all employ an 'old-school' feed-back configuration, while the expander side-chain is derived from a feed-forward arrangement, so that its threshold isn't affected by any gain reduction imposed by the limiter and compressor side-chains. Another innovation introduced by ADR was the use of 'hysteresis' in the gate's threshold circuitry. Most noise-gates in the '60s and '70s suffered from false-triggering or 'chattering' with signals around the threshold. ADR solved this by employing two thresholds which tracked together: the gate-open threshold was higher than the gate-close threshold (hence 'hysteresis'), and that simple concept made the gate operation far more stable and predictable, and a lot easier to set up.

The manual supplied with the F760X RS re-issue includes the complete factory alignment instructions and full circuit schematics derived from the original manual, reflecting the fact that professional studios in the '70s usually had their own maintenance engineers — who expected to be provided with all the relevant information necessary to maintain the equipment. (Sadly, the best you'll get from most manufacturers today is a small block diagram!)

The Compex Timeline

ADR-Compex-F760X-05The origins of the Compex limiter-compressor-expander can be traced back to the late 1960s, when ADR were making their 600-series limiters and 700-series compressors. Combining these two technologies into one product resulted in the F760-N module — the '7' coming from the 700-series and the '6' from the 600-series. This was a single-channel 'vari-loss' FET-based limiter-compressor, housed in a standard European DIN-format module (which was commonly employed in mixing consoles of the day), with front-panel dimensions of 80x190mm. ADR made a bespoke half-width 'Type 69' version specifically to fit Helios consoles, too. By 1972 the original F760-N module had been upgraded to include an expander section, and the model name changed to F760X-N, the 'X' signifying the addition of the expander. Shortly afterwards, mono and stereo rack-mounting versions were produced, called the F760X-R and F760X RS (R indicating rack-mounting, and S for stereo, of course.) The original stereo rack unit was housed in a 3U case, mainly because the electronics were distributed across three plug-in circuit cards which were mounted vertically. Despite its rather clumsy control layout, this first incarnation of the F760X RS quickly became very popular with studio engineers.

This is the first advert for the original version of the F760X RS stereo limiter-compressor-expander (published in Studio Sound magazine in April 1973), showing the original front-panel layout. A revised version with the more familiar control arrangement, and called the Compex for the first time, was first shown in 1975.

Responding to user feedback, Audio Design (Recording) eventually redesigned the unit, mounting the plug-in cards horizontally to allow the use of a 2U rack case, and the front-panel layout was completely redesigned. This revised model was re-launched towards the end of 1974,introducing the 'Compex' (compressor-expander) name for the first time. The sales of this version really took off, and within a couple of years there were well over 800 studios and broadcasters around the world using the Compex (according to ADR's adverts at the time!). It went on to become a firm favourite throughout the '70s and '80s for use on studio vocals and pianos, as well as for overall drum and mix-bus processing, and it was even employed in the live-sound market.

While the standard F760X RS design had unbalanced inputs and outputs (despite the use of XLRs), transformer I/O was also available as an option in F760X RS/T models, using Sowter 3276 (5k:5kΩ) input and 3497 (600:600Ω) output transformers. In the mid 1980s the F760X RS received another small update, which added a pre-emphasis mode to the limiter. This was added for broadcasters and was intended to prevent over-modulation of FM radio transmitters — American models had a 75µs HF boost, while European models had a 50µs boost to conform with the relevant national FM transmitter standards. However, it was subsequently discovered that the 50us curve had the useful side-effect of serving as a very effective vocal de-esser, and so eventually all F760X models ended up with the 50µs pre-emphasis curve as standard. The F760X RS remained in production for 20 years, right up until 1992, and previously-loved models change hands for very considerable sums today.

The Compex was unique in that its single 'vari-loss' FET gain cell was driven by the combined control signals from three separate limiter, compressor and expander side-chains. Up until this point most dynamics processors only did one thing at a time, so the F760X replaced three different devices, and removed two sets of input and output amplifiers from the signal path. The reduction in noise and distortion was significant, and the simultaneous processing also avoided having to worry about the optimum processing order for three individual devices!

The gain-reduction metering includes a stereo coupling mode, and is quite sophisticated — it's best used in conjunction with the indicator lights, which hint at which processes are triggering the gain reduction!

Expanding the Compex technology, ADR introduced the model F768 which combined the company's 800-series switched-LCR equaliser circuitry to allow frequency-conscious dynamic processing. Although a useful product, it was only when a four-band sweep-parametric EQ was incorporated instead — borrowed from a new 900-series EQ design — that the idea really caught on. The resulting model F769X-R was launched around 1975 and became known as the 'Vocal Stressor'.

Towards the end of the 1980s, ADR developed the Compex 2, which maintained a similar functionality to the original Compex but was housed in a 1U rack case. The circuit design was significantly different, though, because it used (then) new VCA technology instead of the FET gain-cell, with feed-forward side-chains and RMS

(rather than peak) sensing. The idea was to achieve lower noise and distortion — something that was deemed desirable in those days!

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