Pure Electro

Martin Logan's new ElectroMotion ESL X electrostatic loudspeaker features a larger XStat panel and a new, more complex, bass cabinet than its budget cousin. Noel Keywood listens.

Electrostatic loudspeakers are brilliant – but difficult. And expensive. Not surprising then that the budget ElectroMotion from Martin Logan has been a success. Priced around £3300 it is a justifiable and affordable purchase to many, it conspicuously delivers electrostatic quality, yet is largely free of electrostatic problems – one being size.

I use electrostatics out of choice and have been using ElectroMotions for some time. They easily fit into my typical 17ft long Victorian lounge and not only perform beautifully, but attract both attention and praise. Even non-hi-fi people latch onto their transparency and pin-sharp imaging immediately. Now, Martin Logan have introduced a model one notch up, the ElectroMotion ESL X (EM ESL X), reviewed here.

In a nutshell, this new upgraded ElectroMotion costs more at £4,498, but has stronger and deeper bass from a more complex bass cabinet. The company have also enlarged and improved the XStat electrostatic panel to sound slightly smoother.

A major drawback of electrostatics is that as panel loudspeakers, they must be large to produce bass. The ESL X is a hybrid design, using a tall, slim electro-

static midrange/treble panel that works from 400Hz upward. Lower frequencies are handled by a conventional bass cabinet fitted with cone drive units, minimising frontal area. As a result the 'speaker is just 24 cm (9.5in) wide. Producing bass in a small lower cabinet keeps size right down; as hi-fi loudspeakers go the ESL X is un-intrusive because it is narrow and mostly see-through.

But at around 5ft high, measuring 150cm (59in) in this dimension, against the 100cm (3ft) or so of most floorstanders this loudspeaker still has presence. The see-through nature of the XStat panel and its shallow depth of just 5cm do however usefully lessen visual impact. Only the bass cabinet is on the hefty side but it is hardly gargantuan, measuring 53cm (21in) deep. Weight is 23.6kgs (52lbs) apiece, making them heavy but not immovable.

The bass cabinet carries a forward-firing 8in bass midrange unit that works up to 400Hz, whilst behind it on the rear panel lurks another 8in unit that handles only frequencies below 100Hz, acting to increase cone area and bass acoustic power at low frequencies. They are loaded by a reflex chamber having a flared port firing downwards to the floor.

It's this subwoofer that enables the ESL X to go low, delivering subsonics our measurements showed. And it is the primary distinguishing feature between the ESL X and the less expensive ESL that I use (which has unintrusive bass). The feet are high to give the port ground clearance, and they offer the option of spikes or rubber feet.

The rear connecting panel has bi-wire connections with links. The high frequency input connects to the XStat panel alone so it can be electrically isolated from the bass bin and driven bi-wired or even bi-amped if wished.

In case you are unfamiliar with electrostatics, they need a high voltage polarising power supply demanding mains connection. Martin Logan arrange this using a wall-wart power supply (100V-240V), sending low voltage (15V d.c.) through a slim, circular 3mm cross-section black cable 10ft (3m) long that can be easily concealed. A small blue LED on the rear lights blue to confirm power is on.

Although high voltage is applied to the front and rear perforated plates, they are insulated and total charge is less than that of a cathode ray TV screen, Martin Logan say – not dangerous. Peter Walker of Quad warned me long ago that it is the output of the audio step-up transformer that can bite, not the voltage on the plates – but it is not exposed.

Martin Logan's panel switches off after 4 seconds in the absence of a signal and this prevents it collecting dust, or moisture in the tropics, they say. It can be Hoovered and even punctured and continue working without sparking, unlike my Quad ESL-57s long ago, as damage (possibly from over-drive) and dust built up. Martin Logan have banished all the issues that make an electrostatic loudspeaker 'difficult' to the average user, as opposed to the dedicated audiophile, and in so doing have brought high-end quality down to the masses – well, those with £3k in their pocket. Crucially, in my experience, sound from their electrostatic film XStat panel isn't compromised by obstructive stators or protection covers.

Most people 'get' electrostatics directly they hear them, but some don't get them at all. In describing the ElectroMotion ESL X I'll cover both ways of seeing things since this helps illuminate what it does, and perhaps what such a hybrid cannot do for some listeners.

The ElectroMotion ESL X XStat electrostatic panel and box bass bin come from different worlds – and you can hear the disparity. But at the same time you can hear unique strengths too. I acclimatise to the apparent mis-match of character between the light, open airy nature of the XStat panel and the heavier, warmer box-bound bass unit, even though I have used an open-dipole Celestion SL6000 bass unit in the past, beneath Quad ESL-63s, that matched in better. Some prefer to stay with the more consistent sound of a conventional loudspeaker, but an electrostatic is so uncoloured and revealing it is in another world – and it makes reviewing a doddle!

The XStat panel of the ESL X is even and coherent across the audio band, ignoring the 400Hz crossover, in a way no multi-driver speaker can be. And by curving the panel, Martin Logan have eliminated the phase cancellations intrinsic to a flat panel, resulting in a smooth and even sound all round, as our measurements

The forward firing 8in bass unit reaches down to 80Hz; it does not handle low bass. A light flexible grille offers protection.

Note the high feet, to give the port clearance.

Front and rear perforated grilles sandwich the clear electrostatically charged film, giving a see-through assembly. The plates are coated with a protective insulant.

The rear carries an 8in low-bass unit, bi-wire inputs that allow XStat panel and bass bin to be electrically split, and a small 15V d.c. supply input socket, with blue LED indicator to confirm power. A rear grille is supplied.

on this little understood way of producing bass.

SOUND QUALITY

I used our trusty Quad QMP mono block power amplifiers initially, for smooth upper treble and prodigious bass. However, the Icon Audio ST-30se single-ended valve power amplifier (reviewed elsewhere in this issue) was a delicious match in sonic terms, backing up my preference here: valves offer a smoother, timbrally sophisticated and more dimensional sound than transistor amplifiers, coming across as natural and unforced through a good electrostatic.

Sources were an Oppo BDP-105D Universal player to spin CD and act as a DAC for an Astell&Kern AK-120 digital player, delivering high-resolution digital files.

I also used our Timestep Evo tuned Technics SL-1210 Mk2 turntable, fitted with SME309 arm and Ortofon A95 moving coil (MC) cartridge feeding an Icon Audio PS3 MkII all-valve phono stage. The clarity and analysis of an electrostatic loudspeaker especially suits LP.

> "you won't hear any box loudspeaker, no matter how expensive, that sounds quite like the ESL X electrostatics"

Martin Logan's XStat panel sounds as clear as it looks. And since it covers a large part of the audio band that simply means you get stunning clarity and a compete lack of colour or the smoothing effect of dynamic drive units that erase low-level detail.

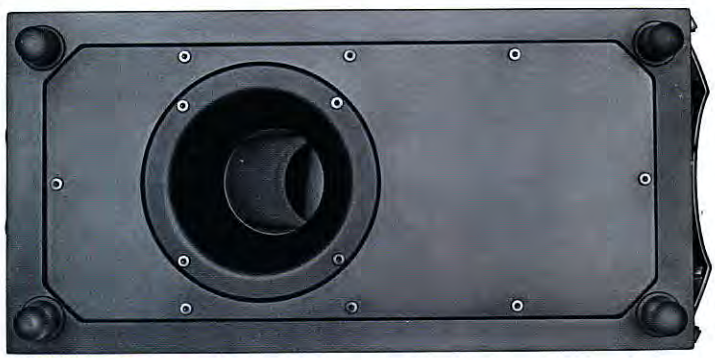
The larger XStat panel of the ESL X is undoubtedly more even sounding than the smaller and slightly sharper sounding ElectroMotion (EM ESL) yet its increased panel area delivers more treble power and in this sense it takes no prisoners, coming across as forthright and projective at high frequencies.

Fleetwood Mac's 'Dreams' (24/96) was characterised by hard cymbal crashes and very obvious leading edge treble from strummed guitar strings but the vocals of Stevie Nicks were superbly clear at centre stage in true electrostatic fashion.

With this track kick drum had depth and power, but whilst bass was well damped and followed the tune, it came across as a tad warm and heavy sounding all the same. It is near impossible to get away from this change of character between open panel and box bass in a hybrid – subjectively the two are far apart. It doesn't especially worry me because I am used to it and have learnt to accept the mismatch in order to enjoy the unique qualities of the XStat panel. But I mention this because not everyone feels the same.

The hard cymbal crashes were in the recording, which was after all made a long time ago (1977). The point here is that the large XStat panel of the ESL X is both revealing and projective; poor recordings that may sound quite good on other loudspeakers all of a sudden have their faults revealed.

CDs that I have used as source material in the past came across as sharp and messy in their treble, the Martin Logans highlighting distortion emanating from the analogue-to-digital convertor (ADC) of the recording studio, these things being the root cause of digital's ills.



A large port fires downwards toward the floor. This loads the rear drive unit and has an output that reaches right down to produce subsonics. The feet have rubber pads that conceal spikes that can be used as an option.

The rear low bass unit is covered by a simple grille, for tidy appearance and some protection too.

Even though Martin Logan have rolled down high-frequency output to reduce sound power (see Measured Performance) the large XStat panel by no means sounds warm or laid-back. However, with clean source material from top-quality CDs, hi-res or LP these loudspeakers offer sweet treble, especially through the Icon Audio ST-30se amplifier.

The complex finger picking of guitar strings in Fleetwood Mac's 'Never Going Back' was teased out in vivid detail, the lightning speed of the electrostatic panel giving lucid insight of plectrum against strings, events being cleanly delineated without blur or smear. It was a lovely performance, vivid yet natural at the same time – and also fast.

The ability to see right into string instruments, as it were, and to present them in all-of-a-piece from one drive unit, brought body and insight to Nigel Kennedy's violin. Playing Massenet's 'Meditation' he stood tall in front of me, his Strad having a looming acoustic presence centre stage because of the sheer resolving power of the XStat panel. There was no phaseiness either; I could move up or down and it affected what I heard not one jot. This brought body to the instrument, giving it a big vivacious presence.

Which brings me onto imaging, which with electrostatics is always something special. The 5ft high XStat panel is what is known as a 'line source'; it is not a point source. A phase-coherent line source like this images very sharply across the soundstage – at any height. The soundstage remains consistent at all levels so whatever height you listen at the sound is the same – unlike multi-driver speakers – and the overall impression is one of a large canvas stretched out in front of the listener that is perfectly focussed and stable.

The ESL X does 'big'. It has a big soundstage and goes loud with ease, putting up the London Symphony Orchestra playing 'Mars', from The Planets, in massive form across the room in front of me, kettle drums thundering in convincing fashion, without boom or overhang.

There's another point to be made here: bass didn't boom even with the low damping factor of the ST-30se amplifier because of good acoustic damping within the bass bin. So whilst bass was fulsome, helping make the speakers sound big and powerful, it was controlled too.

CONCLUSION

The ESL X is a big electrostatic at a small price – as electrostatics go. You won't hear any box loudspeaker, no matter how expensive, that sounds quite like the ESL X. Electrostatics just sound different and the 5ft high see-through XStat panel of this 'budget' hybrid is one of the best in the business; I know because I've heard them all.

Think fabulous insight and deep detail, no colour and vivid speed. There's an airy lightness to the sound but it is inarguably accurate our measurements show – more so than most else in fact, because just one drive unit, the XStat panel, covers most of the audio band. Martin Logan have squeezed big into little with this model, almost without compromise – and that's its great strength. If your pockets go deep enough, you have to hear it.

MEASURED PERFORMANCE

Frequency response of the ElectroMotion ESL X is shown in our third-octave analysis of pink noise. The XStat panel of the X version is smoother across the midband than its smaller cousin. It also has a distinctive slow roll off in high-frequency output above 8kHz. Put both together and the ESL X will sound less forward, smoother and more easy going. By any standard the XStat electrostatic panel gives very even output all the way from 400Hz up to 16kHz and is strong around 3kHz so detail will be made obvious.

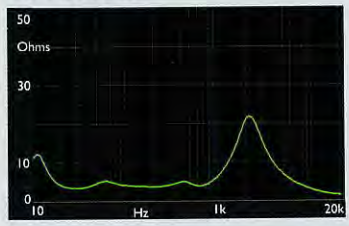
The forward firing bass unit extends output down to 80Hz. Output of the port reaches down to 20Hz, our red trace shows. The port is broadly tuned so will acoustically damp the rear unit strongly and this is obvious from the impedance trace that lacks residual peaks that arise from a typical narrow-tuned and resonant port. ESL X bass will be strong but well damped and tuneful, measurement suggests. The 'speaker will also produce subsonics.

FREQUENCY RESPONSE

Green - driver output

Red - port output

IMPEDANCE



Sensitivity was respectable at 88dB SPL from one nominal Watt (2.8V) at one metre, about as expected, if 3dB below Martin Logan's quoted 91dB. The 'speaker still needs only 40 Watts or so to run very loud, so high power amplifiers are not essential. Measured with music-like pink noise impedance worked out at a low 4 Ohms and our impedance trace shows 3 Ohms from 20Hz up to 800Hz with a smooth resistive characteristic so the ESL X draws current and may well highlight differences between amplifiers.

The XStat panel descends to 1.6 Ohms at 20kHz Martin Logan say and that is shown here too. Valve amps set to 4 Ohms can cope with this easily, and so can most transistor amplifiers; overload with MP3 files is a possibility at high volume.

The ElectroMotion ESL X has far greater bass output than the smaller and simpler EM ESL, as well as smoother panel output. It has been voiced to have powerful bass that is well damped and runs deep, providing an altogether smoother and bigger bodied sound. **NK**

MARTIN LOGAN ELECTROMOTION ESL X £4,498

OUTSTANDING - amongst the best.

VERDICT

Fabulously big sound, with clarity and insight unrivalled by conventional loudspeakers. A world apart.

FOR

- clarity and speed
- no colouration
- strong bass
- imaging

AGAINST

- need mains power
- tall
- box bass

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