

# SPL Model 2380

## Surround Monitor Controller



**This affordable new unit from SPL brings surround monitor control within reach of the home studio owner.**

*Hugh Robjohns*

**T**here appears to be a lot of pressure being put on studio owners to cater for surround sound recording and mixing. The more cynical reader may see the push towards surround sound as little more than marketing hyperbole, and only time will tell whether the great record-buying public really do want surround sound with their music. However, surround sound for film has definitely received the thumbs up, and music produced with surround sound can certainly be very effective, depending on the style of music and the way the extra channels are used. So, assuming that surround sound does become a standard for music presentation, it would make a lot of sense to start experimenting with the format and gaining some experience before it becomes a

mandatory requirement.

Unfortunately for the home studio user, the technology is a little slow in catching up. For example, it has only been in the last few years that digital mixers and computer DAWs have been equipped with surround panning and bussing facilities. Virtually none of the budget mixers have decent surround monitoring facilities, and trying to master your carefully crafted surround material to a disc format compatible with domestic surround sound replay systems is a serious challenge, requiring surprisingly expensive software at the very least. The good news is that the situation is changing for the better, and all three of these problem areas are being addressed by the manufacturers as the demand for surround capabilities grows.

### The Model 2380

The subject of this review is a surround monitoring controller providing facilities which, until now, have only been dealt with effectively at a professional level — and at professional prices — with devices like Tascam's DSM7.1 digital surround controller, or Audient's ASP510/520 analogue surround controller and bass management system. German manufacturers SPL (Sound Performance Lab) are no strangers to

surround sound, as users of their high-end mastering console and Atmos 5.1 system will attest, and they have now applied their engineering expertise to producing an analogue surround monitoring controller at a UK price which brings it well within reach of the more budget-conscious professional edit suite or mix room, as well as the well-heeled home studio.

The Model 2380 is a compact all-analogue surround controller, with a basic portfolio of facilities — certainly enough to manage a surround system effectively, even though there is no provision for clever bass management or for precisely calibrated monitoring levels. What is provided is source selection between two stereo and two 5.1 sources; stereo and surround mode switching; speaker mono, dim and mute; and a rotary multi-channel level control.

The rear panel defines the possible connectivity. To the left is the ubiquitous IEC mains inlet and a mains power switch. The power supply is a conventional linear design with a toroidal transformer, and it appears that mains voltage selection is done during construction by connecting the primaries in series or parallel as necessary. There is certainly no external switching, nor anything

obvious internally. The rear-panel labelling suggests the unit can accept either 230V or 110V supplies, and appropriate fuse ratings are displayed for the two internal fuses, but there are no external markings that I can see to state what the unit is currently configured for. I fear this is a potential safety hazard, as many users may assume that the unit has a universal switched mode supply, and may inadvertently connect the unit to the wrong mains voltage, possibly with dramatic and devastating results! Apparently, one of the boxes to the left of the voltage ratings label is meant to be ticked at the factory, but this had not been done on the review unit.

Both balanced and unbalanced inputs are catered for, the former through a D-Sub connector, and the latter through phono sockets. The first of a pair of 25-way D-Sub connectors accepts eight balanced input channels, wired according to the now almost universal Tascam standard. The second D-Sub connector is a direct loop-through, intended to enable the mixer surround output busses to pass directly to a stem recorder, with the monitoring controller effectively 'eavesdropping' across these busses. Since this connector carries eight channels, SPL

have labelled it Input A + C — Input A being a 5.1 source and Input C being a stereo source. I'll return to the channel assignment in a moment.

**SOUND ON SOUND**

**SPL Model 2380 £469**

**pros**

- The most affordable controller yet.
- Simple, compact design.
- SPL sound quality.
- Balanced and unbalanced inputs.
- Balanced outputs.

**cons**

- Non-standard channel allocations on eight-way interfaces.
- Allows simultaneous stereo and 5.1 output.
- No indicators on speaker mute or mode buttons.

**summary**

An elegant and very affordable analogue surround monitor controller accommodating dual 5.1 and stereo inputs, separate 5.1 and stereo speaker outputs, and all the necessary source selection, mode switching and speaker muting, plus an accurate and transparent passive volume control.

The unbalanced inputs are accommodated by eight phono connectors, Input B being the 5.1 array, and Input D being the stereo inputs. Although it initially makes the back panel legends appear cluttered, SPL have labelled all the connectors twice, so that they can be read either from behind or from above (and therefore upside down). This thoughtful provision will be appreciated by many users when struggling to rewire the system without dismantling everything. Below all the input connectors is a row of quarter-inch TRS balanced output connectors intended to feed the monitor amps or active speakers. Eight sockets provide 5.1 channels for the surround rig plus a separate pair for conventional stereo monitoring.

## Input & Output Assignment

The 5.1 layout of the unbalanced input and balanced output sockets is a little odd, following the order: left, right, left surround, right surround, centre, LFE. The channel assignment of the D-sub connectors copies that layout, and this is one drawback of the Model 2380 — I would certainly recommend that the company reconsiders this aspect of an otherwise well-designed unit. The

## SPL MODEL 2380

► eight-channel D-sub interface is currently wired as follows through channels one to eight: left front, right front, left surround, right surround, centre, LFE, stereo left, stereo right. This sequence ignores the internationally agreed standard for 5.1 channel order assignments within an eight-channel system.

For the record, the AES and ITU both recommend the following allocation for channels one to eight respectively: left front, right front, centre, LFE, left surround, right surround, and channels seven and eight are available for 'free use', but are typically allocated to a stereo source: left on channel seven and right on channel eight. It's not as if Germany has vetoed this allocation standard either, since the German Surround Sound Forum have even proposed a colour coding sequence for it — yellow, red, orange, grey, blue, green, violet, brown.

Of course, the channel order can be anything the user chooses — the source selection, volume control, Dim and Mute All functions are unaffected. However, the individual speaker mute buttons on the front panel would have to be relabelled accordingly, and the Mono Surround Channels button ignored completely. A better solution, and one I would recommend that SPL either adopt or offer as an alternative, is to rewire the ribbon cable interface between the main circuit board and the rear-panel connectors. Although rather fiddly, this would not be particularly difficult to do.

The internal construction of the unit is to SPL's typically high standard, with a high-quality main PCB at the base, and two further boards supported from the angled front panel to support the switches and volume control. The unbalanced inputs and the majority of the buffering circuitry are constructed using standard-sized op-amps and components, while the output drivers employ surface-mount components on small daughterboards alongside each output socket.

## Surround Controls

Moving around to the front of this compact control unit, there are two rows of seven buttons and a large rotary control on the angled face plate. The top row of buttons are coloured white, providing source selection and configuring the monitoring mode. The lower row mute the individual 5.1 speaker outputs, and the separate stereo pair — the buttons have to be pressed in to hear the

corresponding speakers. It is interesting to note that the 5.1 mute buttons are arranged in a different order again: left, centre, right, left surround, right surround, LFE.

In low lighting conditions it can be surprisingly difficult to see whether these buttons are pressed in or not and, given that this is a mains-powered unit, I'm surprised that some form of indicator has not been associated with each button to make the operating status more obvious — panel space is certainly not an issue. In fact, the only indicator is a blue LED below the volume control to show when the power is on.

The input selection and routing is not entirely obvious, and the handbook is rather poor at explaining exactly what is going on here — a simple block diagram of the unit would have made all the difference. By testing the various signal paths manually, I managed to ascertain that the selected inputs are routed to all of the appropriate outputs. In other words, the left and right channels of a selected 5.1 source also appear on the independent stereo monitor outputs, and the left and right channels of a selected stereo source appear on the left and right channels of the 5.1 monitor outputs. This makes for very flexible monitoring configuration, but can be confusing and does allow accidental

provision of any kind of stereo or mono down-mix facility here. The two remaining buttons enable a 20dB dim to all channels and to mute all outputs, the idea being that once a monitoring level has been established it can be left alone, the dim or mute buttons being used if you need to answer the phone or check the balance at a lower level, for example.

## Multi-ganged Volume Control

The volume control itself is a high-quality multi-ganged potentiometer, and is probably the most expensive component in the box, by quite a large margin! SPL chose to engineer the unit with a passive volume control, rather than using some sort of VCA technology, in order to maintain the highest sound quality with a wide operating bandwidth (10Hz to 100kHz at the -3dB points) and negligible distortion (better than 0.01 percent). The wide bandwidth is obviously vital if working with SACD or high-resolution DVD-A material.

The volume control is scaled from zero to 100 percent with sufficiently fine divisions to enable accurate and repeatable monitoring levels to be established. Inter-channel tracking seemed to be extremely consistent across all channels throughout the typical operation range — say between 40 and 80 percent —

and was remarkably good even at more extreme control positions. As well as auditioning the controller with my own PMC surround speaker setup, I also checked the channel linearity using the goniometer or Lissajous display of my DK Audio MSD600 meter. Although this particular display mode can only show the relationship between two channels at a time, by using the left

input as a reference and swapping the other four channels around, I was quickly able to check the matching of the whole system. Perfectly matched channels appear as a thin vertical line and any channel imbalance caused as the volume control is adjusted makes this line 'lean over' in one direction or the other — inaccuracies of a fraction of a decibel become very obvious. Although it was possible to notice a slight imbalance between some channels over the full range of the control, over the typical working area I was impressed with just how precise and consistent it was.

## Impressions

The SPL Model 2380 is an attractive and very practical unit which would work well



monitoring on both the 5.1 and stereo monitor systems simultaneously. Indicators to show which speakers are currently switched on would help here, but a better option would surely be to mute the stereo outputs if a surround source is selected and vice versa, since I can't think of any situation when a user would want to have the same sources playing over both sets of speakers simultaneously.

The Monitor Mode buttons all work as expected, the Mono L/R button applying to both the 5.1 and stereo outputs. Both the Mono L/R and Mono LS/RS buttons introduce 6dB of attenuation to each channel to try to maintain consistent signal levels between stereo and mono. These mono buttons are really only provided to enable easy checking of adjacent channel phase — there is no



alongside any analogue or budget digital console which has surround panning but no surround monitoring facilities.

I have some reservations about the interface channel assignments currently employed by this unit, and the possibility for simultaneous

accidental monitoring of the left and right channels on both the stereo and 5.1 monitoring system is also a cause for concern. However, the first point may not worry users new to working in surround or those whose material is not destined to leave their own premises, and is, in any case, relatively simple to resolve by rewiring the connectors.

However, these issues excepted, this unit does all that is necessary in a surround environment, and with typical SPL quality and precision. There is no significant loss of quality in monitoring signals routed through this controller, and the tracking of the volume control is essentially perfect over the critical



operating range, with practically insignificant variations at very low settings.

The provision of two surround and two stereo inputs is very useful, since this allows multiple 5.1 and stereo sources to be selected, as well as the possibility of wiring the unit to both the mixer outputs and the corresponding recorder returns. Being able to mute individual speakers is very important when trying to track down an errant sound source, and the mono front and rear facilities are useful for confirming phase problems.

This is the most affordable surround monitor controller yet, and while it has necessarily dropped some of the sophisticated

bass management functionality available in higher-end professional controllers in order to meet its tough price target, all the essential facilities are present and correct. This unit is well worth considering if you are keen to work in surround sound. **SOS**

### Information

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