

Meridian 502

Analogue Controller

Ivor Humphreys

I was quite shocked when preparing this review to find that it is some three and a half years (September 1994) since I wrote about four earlier Meridian 500 Series components – the 501 preamplifier, 504 FM tuner, the original 508 CD player and the 555 stereo power amplifier. Additions to the range in the interim, though – most notably, perhaps, the new 20 and now 24-bit versions of the CD components and the home theatre components (the 565 Digital Audio Processor and 586 DVD player) – have kept it newsworthy and have heightened general awareness of Meridian's ongoing development programme. The 502 was released just over a year ago but with little ceremony, perhaps because it is an analogue device and therefore less immediately glamorous.

Meridian's clever matt black plastics and glass fascia is common to all the 500 Series front-end units, which also sport an almost identical array of slim push-keys. Where there isn't a key (the CD players and the tuner have eight, the preamplifiers seven) the fascia has a dummy groove for it and where the faceplate of a CD transport would otherwise appear there's an identical-looking blanking panel. The units are so similar, in fact, that it takes an aficionado to tell them apart at any distance. The only eye-catching difference is a tiny moment of colour-coding: the right-most Off (standby) button, which is red on the 501 and 502, grey on the 508, green on the 504 and so on. Aesthetic integration and subtlety is part of the system's appeal.

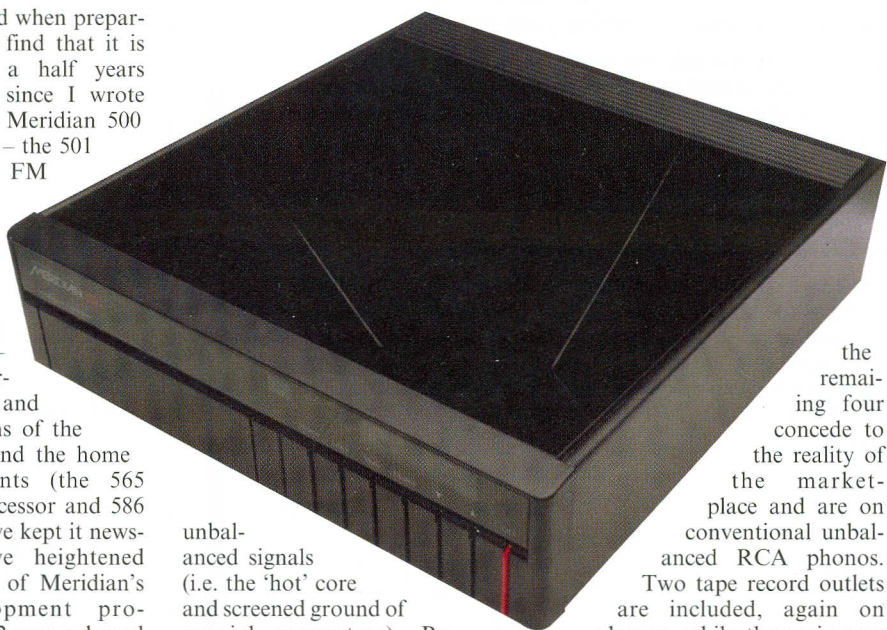
Although similar in form and function, the 501 and this newer 502 are in fact very different beasts, as befits the £600 price differential. Both are stereo control units but whereas in the former some components are shared between the channels, the 502 is a true 'double-mono' device, the one common element being the control circuitry. Even the power transformer has separate windings for each channel and for the control logic board circuitry. This arrangement allows optimal channel separation (i.e. virtually zero crosstalk).

Like almost all domestic hi-fi the 501 works with conventional

unbalanced signals (i.e. the 'hot' core and screened ground of coaxial connectors). By contrast the 502 is fully balanced (complementary positive and negative signal conductors with an independent grounded screen) in line with professional studio equipment. In essence the major difference is that unbalanced lines are subject to interference from adjacent noise sources (typically mains cables, which are very capable noise transmitters). With balanced operation such noise is picked up equally by both conductors but because they are in opposite phase it is cancelled out at the differential terminating input. This is crucial in professional circles where it is common to have very long cable runs in a busy environment. In domestic situations the advantage is smaller except possibly where lengthy pre/power cable runs are envisaged. More to the point, perhaps, is that the all-balanced circuitry of the 502 has made it possible to achieve vanishingly low noise and hum figures; here the 502 offers a two-fold (6dB) improvement over the 501.

The 501 has six inputs, labelled by default (and permanently on the MSR remote handset) CD, Radio, LP, TV (sound only), Tape 1 and Tape 2. As supplied the LP input is simply another line-level input and requires either the additional purchase of a moving-magnet or moving-coil circuit board or an external gain/equalization unit to convert it for use with a pickup cartridge. All this applies to the 502 as well except that there is one MM/MC board per channel and a seventh line-level input.

Three of the 502's inputs are on XLR balanced connectors while



the remaining four concede to the reality of the marketplace and are on conventional unbalanced RCA phonos.

Two tape record outlets are included, again on phonos, while the main preamplifier output is on XLRs and phonos. The rear panel is completed by an RS232 socket (used for testing in the factory, in professional studios or possibly by knowledgeable computer enthusiasts who might want to control things from a PC or laptop – perhaps an amateur recording enthusiast who does a fair bit of on-screen editing), two five-pin DIN Comms sockets (a daisy-chained link which carries control signals between Meridian units) and a switched and fused three-pin IEC mains input socket. A headphones socket was included (at the rear) on the 501 but is omitted here, presumably for lack of space.

Neither preamplifier offers tone controls or filters – a neutral system and source tonal balance is assumed, as so often in purist hi-fi circles nowadays. The thinking here seems almost to be that if you find a particular recording or broadcast wanting in this respect you simply give up on it. It is true, though, that any additional circuitry in the signal path will compromise the signal to an extent, however small.

Normally the 500 Series units are left powered and brought in and out of standby by the Off (standby) key-switch on any one of them. The six remaining keys on the 502 are for Source, which cycles through the enabled inputs (more on this below); Copy, which determines which input, if any, is routed to the tape record outputs, enabling one to listen to one source while recording another; Mute; Display, which reveals or blanks the panel

502 standard settings

Source	Display	Input	Gain	Type 1	Type 2	Type 3
CD	CD	A5	0dB	•	•	•
Radio	Radio	A3	+2dB	•	•	•
LP	LP	A1	+2dB	•	•	•
TV	TV	A4	+8dB	•	•	•
Tape 1	Tape1	A2	+2dB	•	•	•
Tape 2	Tape2	A7	+2dB	•	•	•
CDR	CDR	A6	0dB	•		•
Cable	Cable	A4	+8dB			•
Text	Text	A4	+8dB			•
VCR 1	VCR1	A2	+8dB			•
VCR 2	VCR2	A7	+8dB			•
LD	LD	A1	+0dB			•

Table shows the defaults configured by the three standard settings on the 502

display; and two which Increase or Decrease the volume in 99 accurately calibrated 1dB steps (two pairs of volume control ICs are used per channel, again in a balanced configuration). All these functions except Copy can also be controlled from the MSR system remote control handset (supplied with the 508-24, 506 or 500 CD units or available separately at £70), which has individually labelled input selection keys in place of the cyclic Source button. The MSR also provides for the adjustment of channel balance and 500 system reset (Clear).

The 502 offers a selection of balanced and unbalanced inputs as described, but it is worth noting that an unbalanced (i.e. normal coaxial) source can perfectly well be fed into a balanced input (wiring the 'hot' conductor to the XLR's positive input and the coaxial screen along with the XLR's own negative input to the XLR ground). The external advantages of balanced operation are forsaken of course but the signal is still processed in balanced mode within the preamplifier. Thus the 502 could be used with up to seven conventional unbalanced sources if required and still provide a balanced output to a suitably appointed power amplifier.

Like the 501, the 502 can be customized in various ways by switching it on at the mains while holding in a front panel key. The various options here include the labelling of each input as it is shown in the eight-digit dot-matrix display (which normally shows the currently selected source and volume level); the choice of which rear panel sockets any given input actually selects; the sensitivity of that input (an enormous gain range choice of $\pm 12\text{dB}$); whether or not it can be Copied to the tape record outputs (necessary to prevent a tape deck's output signal being sent to its own input – the classic way of burning out a tweeter or

puncturing an electrostatic membrane); and the Comms type and address (to do with the system mix – 200, 500, 600 Series – and extent). Three "standard" settings are provided which set (or reset) defaults for all these parameters. This is all heady stuff but it does make the 502 extremely adaptable. To be able to alter individual sensitivities so as to match levels when switching between various sources is a feature sadly lacking on most preamplifiers, while re-labelling the inputs clarifies an elaborate set-up, not least for occasional users. The joy is that once set all these 'higher level' parameters are, as it were, hidden behind the simple logic of the regular controls.

There are five printed circuit boards in all, one devoted to the basic smoothed DC power supplies, one each for the channels of the audio circuitry, and two which handle the control and display/switching. The single-sided power supply board holds three completely separate circuits, each comprising a filtered bridge rectifier and two pairs of 2,200 μF electrolytic capacitors. The four-layer audio channel boards are sited immediately behind the rear panel, with the XLR and gold-plated phono connectors mounted directly on them, thereby eliminating point-to-point wiring and keeping the path lengths short. The DC supply is regulated locally on each audio board by two pairs of 317/337 IC regulators. As one would expect, very high quality components are used throughout, with chips sourced from such as Burr-Brown and especially Philips, polypropylene capacitors, close tolerance resistors and so on.

As noted earlier, provision for a pickup cartridge is optional, and effected by small additional plug-in modules, moving-coil or moving-magnet, one per channel. This is a dealer-fit option although it would not be beyond the wit of the common man provided he is prepared to wrestle with the plastics

trim at the top rear of the cabinet and the 12 Torx (spline-headed) screws which retain the steel cover.

A brief word on the Copy function. By default this routes the selected input to the tape record output sockets, as confirmed by a single push of the button, when the display shows "C. Source" (copy source). Two quick pushes select "C. Mute" (i.e. mutes the tape record outputs). Pressing the button more than twice cycles through the available inputs ("C. Radio", "C. LP" etc.). If anything other than the default is chosen the word Copy is and remains illuminated in red above the button as a reminder. At any point a single push causes the main display to confirm the current setting, while two quick pushes will restore the default. This is a very neat bit of one-button logic and much easier to operate than to describe.

Channel balance is controlled by three cursor buttons on the MSR handset, the centre one of which restores equilibrium regardless of the previous setting. The display shows "<30" to "<0>" to "30>" and the law is linear, the gain of one channel increasing and the other decreasing in 0.5dB steps. The maximum swing is thus 30dB (+15 and -15dB). This law is, in fact, flawed since a setting beyond about +3dB/-3dB results in the combined output being increased (simple mathematics shows that the overall power is up more than +3dB at a balance setting of +6dB/-6dB and very much more than this at the extremes). Audibly this is at its most profound with a mono signal but with a stereo source the effect is all too apparent. In practice it is of no great consequence, of course, since balance adjustments are normally

made in moderation, if at all, but there should never be a need to compensate with the volume control for an adjustment to the balance. (A more constant level obtains, incidentally, when the gain increase in either channel is restricted to 3dB while its opposite drops towards, say, -27dB.) Interestingly the 501 was better tailored in this respect.

Performance

As far as the listening is concerned there's not a great deal I can say about this preamplifier. The 502 is certainly either on a par with, or very much better than, any preamplifier I have used. Geoffrey Horn occasionally reminds me (and commends to all reviewers who don't routinely do it) that a good test of such a line-level device is to try to detect its insertion into, say, the tape loop of an existing high resolution system. I've done this with the 502 (using a variable output CD player as the source, via a high quality passive switch-box) and have been unable to tell when the 502 is in circuit.

It adds nothing except the ability to drive long cables, to accept three balanced sources (of which the 508 is one) and, if so configured, to cater for those diehards among us who maintain a collection of LP records. Nothing, that is, except an impression, for want of a better phrase, of complete solidity, authority and dependability; it never puts a foot wrong. That, its comprehensive array of set-up options, one of the 'cleanest' and certainly the quietest (hiss free) moving-magnet phono stages I have used, and a delightfully uncluttered and intuitive interface, make it the perfect choice in almost any high-end system. 

Specification

Two channel dual mono circuit

Unbalanced inputs (RCA phono) adjustable 100mV to 4V rms

Balanced inputs (XLR) adjustable 100mV to 8V rms

MM input adjustable 0.5–17mV for 5cm/s at 1kHz. Load 47k ohms/100pF

MC input adjustable 38–1,200 μV for 5cm/s at 1kHz. Load 220 ohms/10nF

Tape output 1.5V rms

Unbalanced main output adjustable up to 4V rms

Balanced main output adjustable up to 8V rms

Noise and hum <-96dB for line-level inputs; <-70dB MM; <-60dB MC

Distortion <0.01% input to output

Signal-to-noise ratio <-100dB CCIR (1V output, normal input)

Volume control 99 steps of 1dB with balanced mode circuit

Meridian Comms RS232 via two 5-pin 240° DIN sockets

Display eight-character for current source, volume, mute and copy source

Dimensions (W x H x D) 321 x 88 x 332mm

Weight 5kg

Finish black textured enamel and glass

Manufacturer Meridian Audio Limited, Stonehill, Stukeley Meadows, Huntingdon, Cambridgeshire PE18 6ED **Telephone** 01480 434334

Fax 01480 459934 **Web site** <http://www.meridian.co.uk>

UK retail price £1,295. Optional MM or MC modules £110 per pair