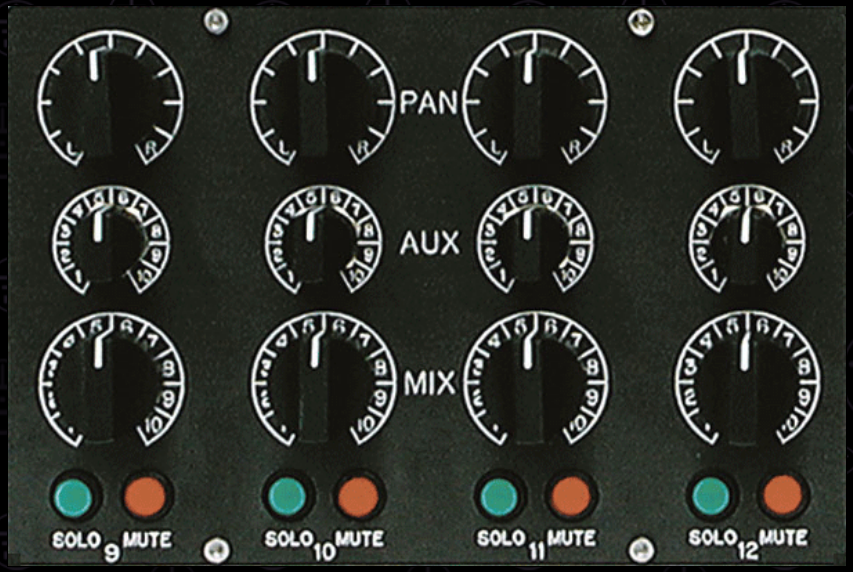
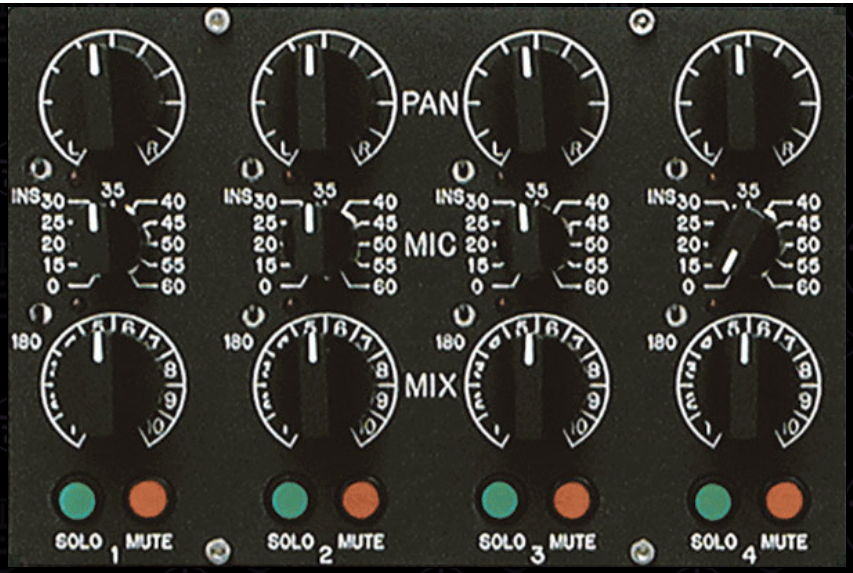

MANLEY
16 X 2
MANLEY
8+8x2
MIC
LIN
MIXER
MANLEY
LABORATORIES, INC.
16 X 2
POWER SUPPLY

Another view of the 8+8 with the PSU:


Above is a view of the optional Rack Mount Faceplate for any of our mixer power supplies.

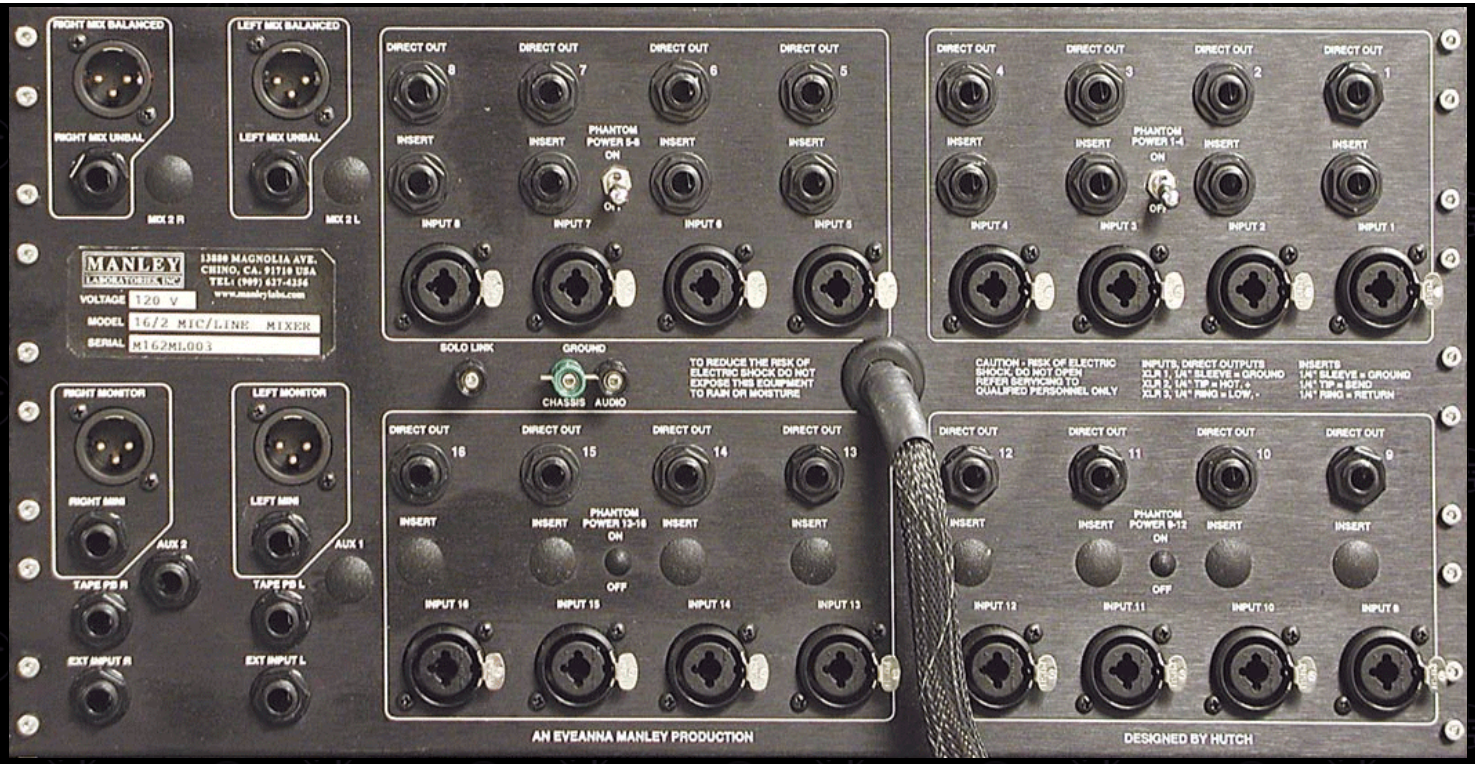



Close up of the Line Channel

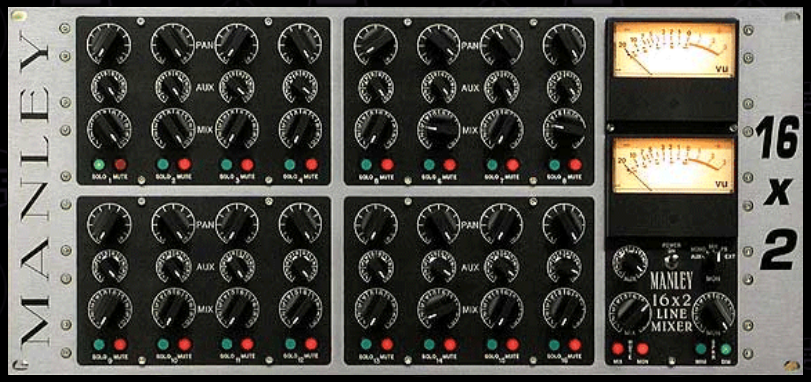



Close up of the MIC Channel

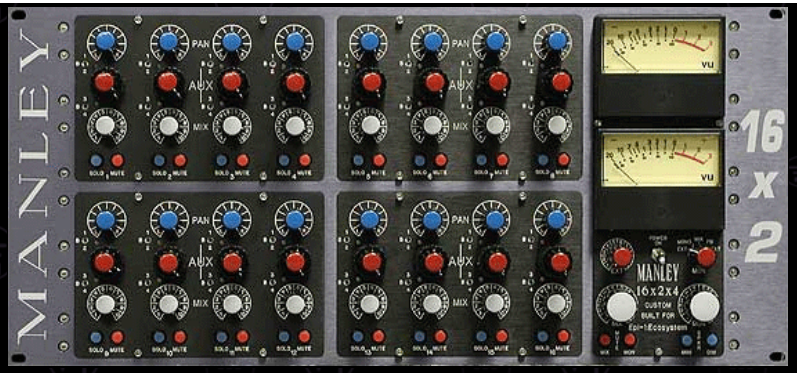

Close up of the 8+8 Meter/Monitor Section



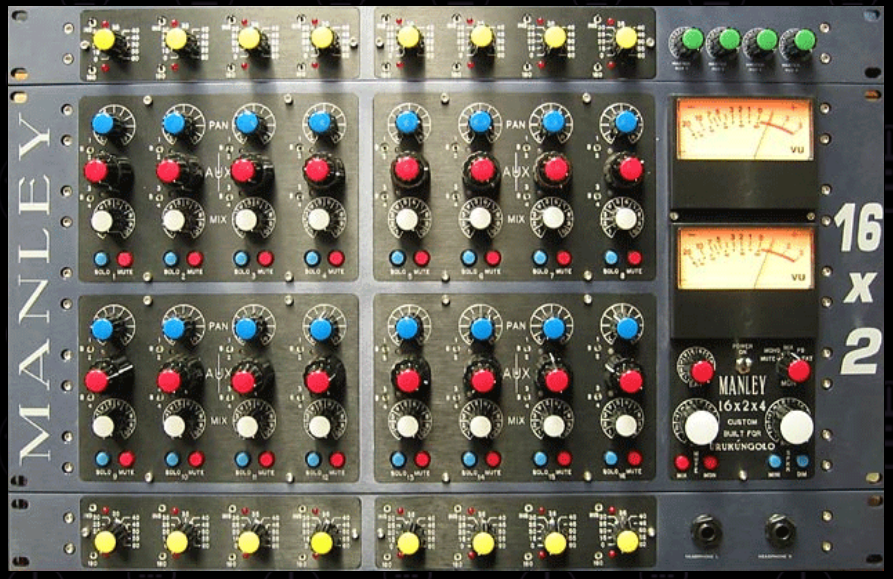

Rear Panel Detail of a 16x2 (8+8) Pictured Above.



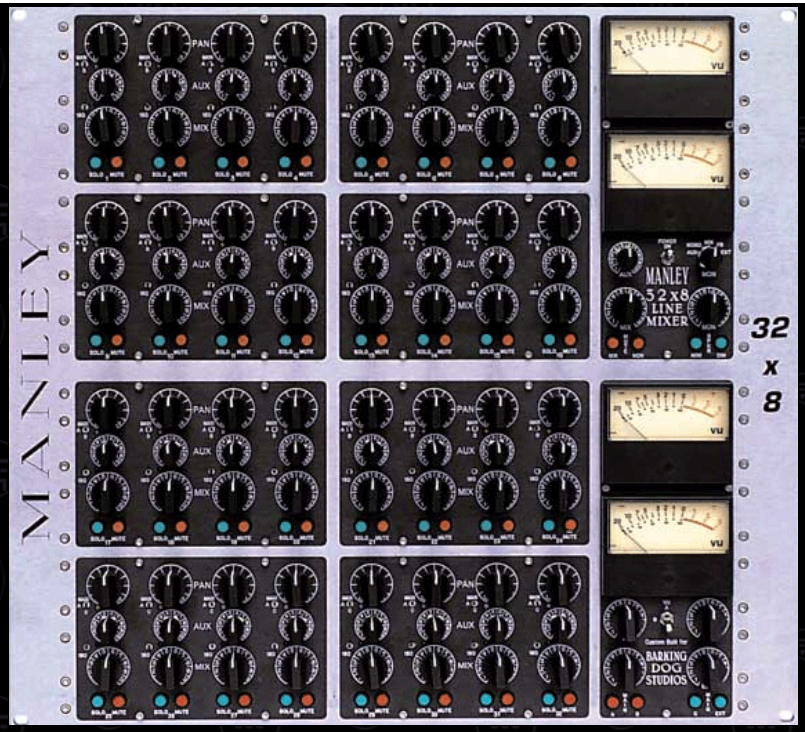

16x2 LINE version shown above.




Here's a 4-Aux custom puppy we completed 10/2002. His name is 16x2x4.




And here is one like that one with Mic Inputs built in the summer of 2004:




Custom 32x8 Version Built for Rob Strickland at Barking Dog Studios.


Another view of the Custom 32x8

Close This Window

**How they come stock: 3 Basic Flavors**

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### 1) Line Version: 16x2 LINE model

XLR/1/4" combo inputs,direct outputs post fader balanced 1/4" One mono Aux mix, stereo Ext input (for linking) (no gain trim), stereo Tape return, Mix gain with both XLR balanced and 1/4" +4 dBm unbalanced outputs. 5 position Monitor select including mono, 2 VU meters, Monitor level, mute, dim and Main/Mini outputs (unbalanced)

Each of the 16 channels has a volume control, pan and aux knobs plus lit EAO solo and mute buttons. Internal jumper to allow Aux to be Pre-Fade, Pre-Mute, or Post-Fade and Mute.

### 2) Mic/Line Version: 16x2 MIC model

XLR/1/4" combo inputs (XLR is 2400 Ohms, 1/4" is 68 kOhms), direct outputs post fader balanced 1/4", 1/4" insert, stereo Ext input (for linking) (with gain trim), stereo Tape return, Mix gain with both XLR balanced and 1/4" +4 dBm unbalanced outputs. 5 position Monitor select including mono, 2 VU meters, Monitor level, mute, dim and Main/Mini outputs (unbalanced). Master Aux gain of Line version becomes stereo Ext Input gain.

Each of the 16 channels has a volume control, pan and Mic Gain knobs plus lit EAO solo and mute buttons. Mic Gain rotary switch set up for 0db (unity), 15,20,25,30,35,40,45,50,55,60 dB of gain. Each channel has Phase Switch & Insert switch on mini toggles with LED status indicators. Internal jumper to allow Aux to be Pre-Fade, Pre-Mute, or Post-Fade and Mute. 48V Phantom power switch for each bank of 4 channels.

### 3) 8 Mic Channels and 8 Line Channels. 16x2 8+8 model

Channels 1-8 Mic Inputs are the same as the Mic Version and Channels 9-16 Line Inputs are the same as the Line Version.

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## Manley Tube Mixer FAQ's

What's in this thing?

Each channel uses the best sounding chips we know of and circuits with exceptional headroom and very low noise, relay switching rather than FETs or CMOS, real pro level input / output levels and Manley quality throughout. Spec-wise know of no mixer ever with better headroom and output levels and the noise floor is quite respectable (but not the absolute lowest we have ever seen) but it does seem to have the lowest crosstalk and leakage we know of. It has just 3 superb polystyrene caps from input to output. No carbon resistors, just 1/2 watt metal film, conductive plastic pots, stepped attenuators etc.

And what about the vacuum tubes?

We don't put in a tube per input channel as might be expected for 'ad appeal' and sales hype. We certainly could, but a proper and effective circuit would require at least two tubes per channel (like our other products) which begins to look like 36 tubes total. Of course this approach would be way hotter (temperature not sound), way bigger and would require a rather huge power supply to light up the 34 glowing tube filaments and it would be a little noisy for 24 bit digital besides being rather expensive. However, the stereo mix amps / line drivers are standard Manley tube circuits, with high quality pro input and output transformers and it certainly provides that 'Manley Sound' with all the richness, loudness and, dare we say, "warmth" you expect from us.

Why did you build it?

The 16/2 Mixer is intended for a variety of applications that require more focus on sound quality than less expensive “knobs and features per dollar” alternatives or larger and far more expensive desks. It simply answers the questions of “ how to get real professional results without mortgaging the house or resorting to hobbyist gear and/or questionable sounding DSP mixers”. Good old Analog Mixing plus the benefits of Manley tube circuits.

What do I use it for?

It seems there are plenty of different applications. Some use it as a great keyboard mixer for recording, thus avoiding wrecking the quality of $20K worth of keys with a sub $1K mixer and/or avoiding latency or sonic issues of mixing in DAWs. Some use it for mixing DAW tracks through multiple DACs for the sonic benefits of analog mixing without the cost of major control rooms. Of course, a good mixer is key. Some are using it for semi-portable or location recording where the end product needs to be better than "hobbyist" quality. Others use it for a broadcast console for WWW radio stations. And others need a high quality monitor console to be confident of their work and what they are listening to or through. They find that they need less processing when they hear the pure tracks and spend less time fixing non-issues caused by monitor electronics. Funny, the same holds true for using good mics at the opposite end of the chain. I've got a ProTools rig. Do I need the Manley 16x2 line mixer?

Unless you need Mic Preamps, the 16x2 Line Version will be the best choice. You can use the +4 XLR outputs from the 888 directly into the mixer, or through a patchbay, if inserts and effects are an issue.

Apparently, this set-up has a startling improvement in audible clarity, air, resolution and, in general terms, sounds musical rather than digital. ProTools has one of the strongest individual channel processing capabilities with all the TDM plugs available, plus automation and its own mix busses. Many users report significant sonic benefits by using multiple DACS to feed a good analog mixer. They mix and automate to sub-groups or stems and for the most part, the analog mixer controls may not even be used except to set basic sub-group levels. And, yes, some have asked for a no-knob version but the cost difference is not worth getting excited about. Apparently these engineers report greatly increased "air" resolution and solid imaging.

We expect similar reports from guys who move a similar number of channels from some digital desks to analog. There has been some speculation why this seems to be advantageous, including technical issues

with older DAW software & hardware, resolution improvements of one DAC versus many, analog characteristics of low level distortions, or clipping, or iron saturation, but whatever the reason, it seems to help a lot, and worth a try if you can do it.

Certainly some DACs tend to clip early, some tend to smear in the time domain, and some are jitter sensitive and we can expect some improvements as these issues are improved or multiple DACs are used to "average out" the problems. We can tell you that we hear analog quality not as a simplistic matter of adding some distortion or removing some measurable distortion, but like most musical qualities, is more a matter of how much, when and where but more importantly, how little, when not, and where not. For example we aim for +30 dBu through the mixer, which shows what we think of clipping in general and particularly when its not asked for. "Taste" may be difficult to quantise in numbers or for that matter digits.

One client told us, that combo very much impressed Michael Jackson's engineer and that it kills much more mix pricey alternatives , and it is a 50/50 choice whether to use vintage Neve modules/console or the 16x2. Gotta like that comment.

Wow, You offer custom options? What I want is the 16x2 with 3 or 4 aux sends and some sort of digidesign interface so that level and panning controls can work with protools automation while the signal remains analog 100% or fantasy # 2 more reasonable, a pair of 16x2 with 2 aux sends per channel plus panning plus the pultec eq built in on the master stereo strip, still in rack mount form....?

We can make anything you want but the catch is, you gotta pay the Research and Development and test time for the engineering staff for a custom built unit. The unaffordable other brand mixers you mention are at least built with some form of mass appeal and these costs are spread amongst the first few hundred customers. We could build a mixer as you describe but it would be way easier to just add the auxes to an existing design, and for you to use your existing Stereo Pultec or get another or a Massivo. This way we don't have to design another chassis, power supply and redesign the tube mix amps for the EQ. And by easier, translate that to "less costly". This would be a single 10U chassis with micro toggles to select the 3 auxes. We even have a few chassis made.

We are building a number of custom mixers and even the basic mixer design started off as a custom order. There is 32x8(+1 aux), 16x4(+1 aux), on top of a confusing array of standard variations we planned for, and detailed on this website. Seems, everybody wants something a bit different. All it takes is money and patience, from them, and a lot of effort and thought toward details from us. We would probably modify another guy's custom job (for a 32x8 mixer), change some engraving and use the extra busses for auxes. Not sure whether we would have to design new daughter boards or could modify some existing ones. - EveAnna can give you the exact price once that is decided, but it will be at least $22K as described (without the EQ), maybe $26K including an external Massivo (package price), and at least $30K for the Pultecs built in - see what happens when we factor in design time - costs more than the individual pieces. Hopefully it does more, but not much in this case. BTW, separate external EQ at least allows you to patch the EQ as needed rather than have it permanently across the buss - which may be just a funny passing fad, of the last 3 years. Some rather sweet reviews of the 16x2 will be appearing in the trades in the next few months - good reading.

Custom units tend to take 4 to 5 months from when we get a 50% deposit to when they are delivered. They are typically significantly more costly than off-the-shelf products. The reason people order them is that nothing similar actually exists and they need it for the type of work they do, which is typically unique or rarified enough that, generally, factories have not aimed products to them, like mastering or audiophilia recording. We like helping those artists, but the gov't won't let us do it as a charity deduction. Wanna buy a $60K surround mastering console?

I only want 8 channels. Can you build me an 8x2 for half the price of a 16x2?

We get this request all the time to do an 8x2. We make 16+channel mixers. The metalwork is set up for 4 banks of 4. The mainframe is set up to occupy 5RU. We know you guys really just want 8 channels for less than half the price of 16. Ain't gonna happen.

We can provide a Manley 16x2 with 8 of the channels (two banks of 4) loaded with blank inserts. This would only bring the retail price down to somewhere around $7K for the line version. For that expense plus $2K more, you might as well get all 16 channels. At this stage we cannot re-design this product to be a 3RU 8x2. Maybe someday we will get to that, and we kinda plan to, but for now, re-laying up all the boards and all the metalwork is not something we have time or resources available to do, right now.

Can I run LINE signals into the MIC XLR inputs on a MIC version?

Well, you should run them into the 1/4" jack which is meant for LINE signals. On the XLR inputs - I hope you are aware that most mics pretty much are designed for low impedance loads like 2400 Ohms, and most line inputs are 20,000 Ohms or higher. This is why we used a "combo jack" so that the difference in impedances can be optimum for both mics and line signals. To make a long story short, if you want, we can set the XLR impedance for 80K too, but don't bitch if some mics sound wierd. This is fine if you just intend the mixer for line inputs. The "mod" is the deletion of 1 resistor. On the other hand most pro gear (effects) will have no problem driving 2400 Ohms (except some might be loaded by less than a dB) so, if it were me, I would stay standard there and if I ran into a loading problem just use the 1/4" jacks. Up to you.

Also, we assume that you are aware that there is very little difference in circuits between the mic and line version. We add a stepped resistor switch to control the gain of the SAME input stage, and we add a relay and chip that allows Inserts.

Is it possible to build a 16x2 Line version with an insert point on the buss? (To insert a Manley Variable Mu® of course.)

No because there's nowhere we can insert into in that part of the circuit, but here is your work-around:

Run a set of the Main Mix outputs of the mixer into your compressor and then run the output of the compressor into two places at once with a Y-Cord or splitter: Run it back into the mixer via the EXT (external) inputs so you can monitor off that. Use the other output off your Y-Cord to drive your recorder. Alternatively you can monitor off the recorder instead of in the mixer. The only bad thing about doing it this way is that when you use the master fader to fade down, the compressor isn't following the fade.

Why can't I have ALL balanced XLR jacks on the outputs instead of only 1 balanced and 3 unbalanced sets?

Now regarding balanced and unbalanced outputs. All the main outputs whether they are XLR or 1/4" TRS are 3 connector jacks and are +4dBu and will drive balanced or unbalanced lines the same because we "balance" the output impedances. The two true balanced floating outputs are achieved with transformers. I hope you not thinking that unbalanced is:1) a lower level like -10 dBv for hi-fi, consumer or semi-pro, 2) Can't drive into balanced inputs, 3) might require some tricky cables to drive balanced inputs. Many people are confused now that the semi-pro gear is so common and most of it "equates" unbalanced with lower consumer standard levels. A lot of unbalanced inputs and outputs on semi-pro gear is -10 dBv, but unbalanced really refers to is wires and has nothing to do with levels. Manley uses full +4 dBu levels on its outputs whether they are balanced or unbalanced and the unbalanced outputs have balanced impedances which means "no hum or RF compromises".

So we can wire the MAIN 1/4" jack to be parallel with the XLR easily but you lose the ability to bypass the transformer, which in some situations where you are looking for a more audiophile sound, might be a good thing. We can't wire the monitor outputs to be balanced BUT as stated above, they are designed to fully drive balanced inputs, long cables and will even drive 50 Ohm headphones. If you really NEED true balanced outputs on the monitor jacks, expect to add another $1500 to the price, but methinks it would be a waste of money.

Hope this helps.

Price on your "custom" MIC version: what you want seems to be the same as the standard mic version ($9,900). We can't really add $ for deleting some resistors and cutting a few traces and adding a few pieces of wire. Is is possible to mod the awesome 16x2 for 5.1 mixing??

It depends on how you define 5.1 mixing and depends on the customer's requirements & expectations.....

We developed a 6 way buss pair of cards for the 32/8. We could use them but these are solid state. There is no room to do 6 mix buss amps with tubes. This would be fairly easy and very similar in price. There is no monitoring function on those cards and it would have to be dome externally (including solo). The 32/8 also has the tube boards for stereo monitoring functions.

The other big consideration is channel panning. We have ONE stereo pan pot and possibilities for a 3 way switch for buss assign.

At AES somebody suggested another approach. Just build the mixer with 8 channels and use ProTools own 5.1 automated panning. This opens the bottom section up spacewise for buss amps or auxes. This is interesting and possible but then requires design time and a good number of months to get built especially when there is so much else on our plates right now. There is simply no way to give it priority treatment at the moment. This would also be costly in terms of engineering time, and certainly have to be charged at 'custom rates'. This is kind of a bad time to be asking us for 'custom' when we have 8 new products announced to be designed and delivered in 2004. We are turning away almost all such projects mostly by quoting a price based on what we expect to lose by taking them on. We are not a big operation with many engineers, and this approach could take up to 2 months of my time. In previous years this was easier to do.

Not that this helps, but we did hope to design a surround version of the 16/2 but we have only had a few requests so it seemed unwarranted. Where we have seen enough requests, we tried to design solutions. This one is rare.

## Features and Specifications

- Channel Input to Mix Output:
- Frequency Response Unity Gain 5 Hz to 100 KHz -1 db
- THD + N Unity Gain (+0 dBu) .05% (-65 dB)
- S/N Output @ +33 dBu 109 dB 22Hz-20KHz
- Noise Floor 22 Hz to 20K -80 dBu typical
- Maximum Gain Mic = +60 dB Mix Gain +10 dB (Mic = 70 dB)
- Maximum Output (Mix Gain +10) +33 dBu Balanced
- Main Buss Vacuum Tubes: 2 x 12AT7 NOS Phillips; 2 x 6414 NOS GE or Raytheon
- Power Consumption (120/240 VAC): 144 watts
    - Factory set for 100V, 120V or 220-240VAC operation for original destination country's mains voltage.
    - Operating Mains Voltage changeable with power transformer primary switch and fuse value change.
    - Mains Voltage Frequency: 50~ 60Hz
- Dimensions:
    - 16x2 Mixer: 19" x 8.75" x 6.25" (occupies 5U)
    - PSU: 13" x 3.5" x 11.5" (rack mount kit available)
- Shipping Weight: 38 lbs with PSU


Manley 16x2 (8+8) Tube Mixer