

## Four Track Recording



**Beginner and pro techniques for the home recordist...**

Four-track recording: what is it?

Think of a four-track as an ordinary cassette recorder - with one big difference: a four-track can play and record at the same time. This is called "multi-tracking." A "24-track" tape recorder can record and play back 24 different tracks of music at the same time. This is large and expensive, however, and a four-track can do the same thing, using only four tracks, at a much lower price.

When you want to store a musical idea to work on later or pass on to others, you can use a four-track like a sketchpad. It's a quick, simple and impressive way to get yourself (and your ideas) across to the musicians around you. After all, if you want to be successful with music other people will have to hear your work. So if you are serious about music then think seriously about getting a four-track. ...

How to get the best

It's nice to have a song in your heart, or in your head, or on paper, but it's not really enough. If you have a song, you've got to have it on tape. One way to do it is to hire a studio and make a demo. This feels great at the time but it costs a bomb, and when you get the results home you'll probably want to do it all again. The other way is to bring the studio to you.

This has a lot going for it. The clever bit is shrinking the most important (and expensive) parts of the studio, the tape recorder and mixing desk, to the size of a paperback, leaving the rest to personal choice and budget. There are a few compromises: you only have four tracks to play with instead of 16 or 24, and the mixing desk usually has a few less knobs. After that, though, it's pretty much the same thing. Add a hi-fi amp and a good pair of speakers ("monitors" in studio-speak), plug in a normal cassette deck to record your results, and away you go.

A four-track is a cassette recorder. The difference is that normal stereo cassettes use only half the width of the tape. Four-tracks use the whole width, so you have room for four tracks of music. This means that when you record a cassette in a four-track machine you can only use one side, like a video. Four-tracks vary enormously in features and price. Depending on your budget you can get a small box with two faders (long sliding volume controls) and a mechanical tape counter, or go right up to a new Tascam 644 with 16 inputs, MIDI and full remote control.

Whatever you buy, you'll need a reverb unit, a microphone and some headphones to start with. After that the list goes on and on. But before you leap into a mountain of gear you'll need to know how to use your own kit. Your pride and joy is useless if all you can hear is somebody gargling with wet fish in your headphones - and the record companies aren't likely to go for it either.

Things to think about

The first consideration is media: the tape you use will have an enormous effect on the sound of your machine, and to get the best out of it you have to put the best in. All four-track recorders have one essential, the cassette, and this must contain good quality, chrome tape. (Never use metal tapes in your four-track - the heads are too sensitive.) Best results usually come from That's EM-X, TDK SA or Maxell XL2 (cost £2 to £3 each from audio shops), depending on your machine. Always buy C90s (or at least C60s) and remember you can only use one side of the cassette - in other words, one C90 tape gives you 45 minutes of playing time, or 22 minutes at high speed.

The second consideration is maintenance. Professional studios spend a fortune on their machines, cleaning and lining up at the start of each day, and it makes sense for your four-track to get the same attention. It's a good idea to clean your tape heads before the start of every session.

So how about recording some music? First thing down is usually the drum machine. Write a good interesting part, set the individual drum levels and get the tempo right. Now use the stereo L/R outputs (on the drum machine) and connect to the four-track. Before you play, turn the volume down on your amp and only turn it up again when you see the green and red LEDs moving with the drums. This way you can avoid blowing your stereo up.

It is important to get the right recording level without distorting the sound. Pull the channel faders (the long sliders) right down and turn the drum machine volume right up. Then push the faders up until the lights on your four-track are showing constant green and occasionally red. Now turn your amp up and listen to the drums. If you want to hear them louder, use the volume control on your amp. In most cases - especially with drum machines and sequencers - the input level will stay constant, so you won't have to adjust the faders again.

Sounds good? Here are a few things you can try to get it even better. Try putting your drum machine through a compressor - a guitar compressor pedal will do. This has the effect of tightening up the sound and means you can get more level on to tape. Big studios use exactly the same method to get their drum sounds - they just use a more expensive compressor. Don't use any reverb while recording unless it's part of the sound, and don't use the tone controls on the four-track mixer. Save any EQ (Equalisation using tone controls) for the final mix, unless it's needed badly.

Recording vocals with a four-track is an art in itself. There is one golden rule: if you want to record your own vocals, get a mate to push the buttons. Singing requires concentration and emotion - it can be difficult portraying the anguish of lost love while worrying about that flashing red light. Choose a small bright room (like a toilet) and beg, borrow or steal the best microphone you can get. There are loads to choose from. AKG makes a good low-budget mic, the D80 - £42 from good music shops or reputable mail order dealers.

Use a compressor to squeeze the vocals very slightly and try to get the vocalist to lean away from the mic for the loud bits. Some reverb (a little, and short) will ease the performance, and so will clever use of the monitor mix (if you have this facility). If your vocalist is over-ambitious, turning the vocals up in his headphones will cause him to do less in order to hear more track. Likewise you can persuade a reluctant singer to sing up by turning the vocals down. Turn the mic right down or use the mute button (if you have one) to create clean sections during introductions and instrumentals.

Things to do with it

"Bouncing" is not what happens when your four-track hits the floor (that's called breaking). There will come a time when you have to do some sub-mixing or "bouncing" in order to free up space on your machine. Every four-track can do this.

You have four tracks, A, B, C and D. The rhythm parts go on first - drums on track A, bass on track B and rhythm guitar on track C. For a "bounce," tracks A, B and C are recorded again on to track D. The result is that drums, bass and guitar are now jumbled together on track D. Tracks A, B and C are free to be recorded over again. There are two drawbacks to this. One is that the drums, bass and guitar are now hopelessly entangled with one another and can't be treated individually. The other is that there is some loss of quality in the finished mix - but this need not be a problem.

When deciding on the balance between instruments for the bounce, look ahead at the finished track and give each instrument a priority. Don't hide the rhythm guitar behind the drums or you could lose the song. Make sure that the bass fits in with the kick drum. Is one too busy? If so, fix it now. Don't be tempted to use those tone controls.

Adding a little bass to each track means a lot of bass on the bounce, which you can't take off. Just turn up the monitors to get the same effect without ruining your mix. Add a tweak of treble to counter the dulling effect of the sub-mixing. Remember that you can record your bounce, listen, and if you don't like it you can do it again without losing a thing. Try "spinning in" another part, such as a tambourine, while bouncing. Use channel 4 on the mixing desk to get four tracks on one with three to go. That's nearly eight tracks already!

Tapes recorded on a four-track cannot play on normal stereo cassette decks. If you want other people to hear your work you must make a stereo recording of your tracks. This is called "mixing" or "mix-down." Connect the Line Out of your four-track to the Line In of your cassette deck. Play the four-track and listen to each track in turn. If you want to add any Reverb or EQ, do it now, and listen to the effect it has on the whole mix, not just on each separate track. It's best to choose a small bright reverb to add a little shine to the overall sound.

For extra space use the Pan control. This enables you to place each track in the stereo mix - think of it as a balance control. Stereo instruments (those taking two tracks) should be panned wide - left goes hard left, right hard right. Mono parts (one track each) should be placed according to weight. Heavy things like drums and bass go central; lighter ones like strings can go further out.

To give the whole mix just the right amount of effect, use just a little on each track. Each four-track has a slightly different method of getting part of a track out of the mixer, through an effects box and back in again. This is usually called an "Aux" (short for Auxiliary) - an extravagant word for a tiny mixer. Some four-tracks have none, some have one and some (like the old Fostex 260) have two stereo ones. This is a good point to remember when buying your four-track because you are sure to need this function before long.

Rehearse the mix until you are satisfied that everything is smooth. You may want to push the vocals for a verse or completely drop another part for one section. Some people even "spin in" a brand new part during mixdown. Remember that this is an art and it takes time to learn. Trust your ears for two hours, then rest. Ask your mates what they think. Try one mix, then another in a different style. Sometimes it happens in one and sometimes it takes all night - but 4am mixes are a not a good idea. If it gets to the point where you are letting things pass just to get it over with, have a rest and come back later.

When you decide that the mix is complete, record the whole thing to the stereo cassette deck. For your mixdown tape use a really good chrome cassette (the same as you use for the four-track) and don't use noise reduction. Now all you have to do is play the four-track, balance the mix, check the levels, listen to the result and give it a nice clean fade. At the end of the song rewind both tapes and play the mix on a hi-fi that you are used to. If it sounds odd, go back and do it again.

All this sounds hard? That's why a few people get paid a lot of money to do it.

When you come to work in a large studio, you will recognise the same system. The recording process changes little from basic level to professional; it's just that the machines get bigger, with more buttons. So your four-track can be an important introduction to a much larger world.

#### Things to remember

If you are planning to go into an 8-track or 16-track studio, you can save yourself lots of time and money by doing a little pre-production. Most bands spend too much time in the studio doing things that they should have done at home. First of all, write the song and argue about the arrangement on your own time - it's much less expensive. Then use a drum machine to record a simple part, the right song length and tempo, on your four-track. Now record the rhythm section (rhythm guitar, bass and keyboards) on the other three tracks and take time to ensure that they are perfect. When you go into the studio, record your four tracks on to the studio machine.

Now all your drummer has to do is use the nice big room, expensive mics and such to get a really good sound. He can put down his drums to the already-recorded drum machine (keeps him in time too) while getting off on your guitar, bass and keyboard parts. You save loads of time and can take advantage of the pro gear to make a great tape. You won't waste time trying to get a good feel in a strange place... as it were.

More and more professional bands and artists are going home to pre-produce and store their work on computer. Record companies are no longer ready to fund long writing sessions in studios at £2,000 a day. Entire albums are mastered in front rooms, and studios are only booked for a short time, just to do vocals. You just bring your computer into the studio, record your parts onto the tapeless digital 48-track and give it some polish with better equipment - the same as a four-track on a larger scale.

So get used to working at home. Your four-track is a brilliant start to working in a professional way. Later you can buy some more expensive equipment, but things you do today will stay with you. The same, just a bit bigger.

#### Top tips

1. Good sounds don't have to be difficult to get, and you don't have to raid your sample CD collection to get them either. Guitars sound great with three inexpensive footpedals. A distortion for noise, a delay for length (tuned to the tempo of the track) and a wah-wah stuck halfway turns your guitar into hot stuff - just ask Prince.
2. If your bass guitarist has a good bass amp, try pushing the drum machine through that and use the Graphic Equaliser to give the drums a bit of boom. It will probably have a good compressor on it too.
3. Keyboards have some great sounds, but try to avoid using those enormous string or synth pads, especially in busy tracks. Sounds like this don't work on a limited system and the big reverbs get cut short by the Dolby C or DBX noise reduction. Use a reverb when you mix and everything will sparkle.
4. Would you like to be George Martin? Take the cassette out of your four-track, turn it over and put it back in. Record something off your drum machine. Take the tape out, turn it over and play. Instant Beatles! (This trick works on anything.)

cleaning your heads

Professional studios don't just use good equipment, they take care of it too. No matter what you're using, it makes sense to do the same. The one thing you can do to ensure the best possible results - and the longest life - from your four-track is to clean the tape heads regularly.

1. You don't need a lot of expensive kit to clean your tape heads. Begin with some good quality cotton buds - Johnson's are a good bet (good cotton, wrapped tight so you don't get potentially damaging wisps of stray cotton everywhere). Then ask at a good chemist's for some Isopropyl alcohol. If you buy proprietary cassette head cleaning kits, check that they don't contain anything different - they could damage the tape head. (The Fostex Head Cleaning Kit is safe - it's £7 from Turnkey of London, Tel 0171 379 5148, or good music stores.)
2. Open up your cassette door and you should be able to get at all the important bits.
3. Damp a cotton bud with the cleaning fluid or alcohol. Wipe the wet cotton bud gently over the tape head. Don't press hard. If the head is really dirty you may need to use a second cotton bud. Then use another, dry, cotton bud to dry the tape head, rubbing the clean cotton over the head to remove moisture. Anything left will evaporate away. The tape head should be shiny and free of marks.
4. Use a damp cotton bud to clean the rotating capstan. Rest the cotton bud against the capstan until the cotton is clean - but do not do this if the pinch roller is touching the capstan. Dry as before, then press Play to bring the pinch roller against the rotating capstan. Lean a dry cotton bud on the revolving pinch roller to remove any oxide. Never use alcohol for this - it dries the rubber.