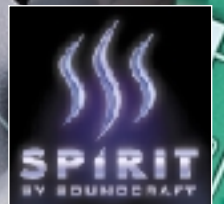


Mixing with Spirit Digital 328

# INTERFACE 328





Already hailed as "the best live band in Britain", Mercury Music Prize-nominees Asian Dub Foundation start their first headlining tour of the USA with a Spirit Digital 328 at the heart of their set-up.

Currently rehearsing for their forthcoming tour in a London studio, DJ and samplist Pandit G outlines what the band were looking for in a digital desk. "We've had problems with digital consoles crashing before. Obviously it can be a real nightmare, especially when you're on tour in a foreign country, so we were looking for something a bit more robust. When we're out on stage all the loops and samples will be going through the Spirit, so we need to be able to change all the settings instantly. We're looking forward to trying the desk out in the studio once we get back from the tour."

Sun-J, ADF's live MIDI co-ordinator and technical mastermind, picks up the story...

"In our basic set-up, all the drums and technical sounds come from a sampler, linked to my mixing desk. I'll do all the pre-EQing here in the rehearsal studio and save it all onto the desk. Live, I'll recall the settings song by song and basically mute in and out anything I don't want. Many of our songs are three minutes long and need tight arrangements, but some of our instrumental tracks can go on for nine or ten minutes, and I'll be controlling the whole thing from the desk. I'll bring in some synth sounds or some tabla beats, put effects on them and dub them on the fly. The rest of the band play around what I'm putting through the desk.

"When we started I was using an analogue desk live which meant that I had to physically re-EQ all the beats at the end of each song. Digital desks just totally put an end to all that. I've been using a menu-driven digital desk for a while but it's not

really designed for the live environment. Because we're using sampled sounds, it would be impossible for our front-of-house engineer to keep the drums EQed. We have to keep a tight reign on them."

Subjectively, Sun-J observes that among the strong points of the 328 is a "really fat bottom end. It sounds like there's been a lot of work on the EQ side of things."

"When we get back into the studio, I think the digital capabilities of the desk will really come to the fore, especially the automation. I use the desk in the studio as I use it live; all the effects and mutes will be going through the 328 into the main console.

"The 328 is going to be used like the old Jamaican reggae producers would have used it; it's going to be pushed to its maximum potential. I can feel that it's going to be a good one for us".

# ASIAN DUB FOUNDATION

"The 328 is going to be used like the old Jamaican reggae producers would have used it; it's going to be pushed to its maximum potential."

SUN-J, ASIAN DUB FOUNDATION



## TOUR AMERICA WITH DIGITAL 328



If you're new to the world of digital mixing, there's no better place to look for an explanation of its principles and practice than in the pages of the Spirit Guide To Digital Mixing. This handy booklet looks at how digital mixers differ from analogue, how their advantages arise, and how to use digital mixers in typical mixing applications. It also demystifies some important but little-understood digital audio concepts, such as wordclock.

To claim your free copy, all you have to do is ask – contact us by post or email, and don't forget to include your full name and postal address.

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## FREE COPIES OF THE SPIRIT GUIDE TO DIGITAL MIXING

Sheffield has always been known around the world for its metal exports – but where in its industrial heyday this was a steel town, the exports are now platinum, gold and silver. Gold and platinum discs, that is, which Sheffield-based Steelworks are producing with post-industrial efficiency thanks to two Spirit Digital 328s.

Steelworks was set up by the production and writing partnership of Elliot Kennedy, Tim Lever and Mike Percy, who have racked up an impressive series of hit singles and albums for some of pop's biggest names. Past credits include Céline Dion, Bryan Adams, Five and 911. They are currently writing tracks with Spice Girl Mel C, whose recent duet with Bryan Adams was part-recorded at Steelworks, and working with Simon Fuller's latest hopefuls S-Club-7.

Steelworks employs a 3-studio system that splits track laying, vocal and mixing duties. This enables the trio to work fast, passing projects from studio to studio, a trick picked up from another well-known pop production team – Stock, Aitken and Waterman. The two Spirit Digital 328s take pride of place in the track laying suite, alongside an extensive range of outboard, and a much-loved ProTools System.

"The 328s simply sound fantastic," explains Mike Percy, "I can now bypass any digital to analogue conversion and stay entirely digital."

# STEELWORKS FORGE 328 HITS

"I can now bypass any digital to analogue conversion and stay entirely digital. In fact the Spirit 328 makes using Pro Tools a lot cheaper."

MIKE PERCY, WRITER/PRODUCER



Mike Percy (left) and Tim Lever

## RADIOHEAD, GABRIEL, SPRINGSTEEN, MORISSETTE, SPIRIT DIGITAL 328 & AMNESTY INTERNATIONAL



Photo: Dana Springour

When Amnesty International staged its Paris concert to mark the 50th anniversary of the Universal Declaration of Human Rights, Radiohead, Peter Gabriel, Bruce Springsteen, Alanis Morissette, Page & Plant and Shania Twain all took to the stage to lead the celebrations. And among the key pieces of FOH equipment on the night was a Spirit Digital 328.

The console, supplied by SSE Birmingham, performed admirably. Chris Beale, leader of the SSE crew, explains how it fitted into the event:

"The 328 was used for playback and a few mic inputs on stage. We specced the console and, as expected, it performed wonderfully throughout the evening. The speeches and announcements that went through it included those by Anita Roddick and the Dalai Lama."

# PARIS



Photo: Dana Springour



Ron Wikso and Bruce Turgon, Foreigner's drummer and bassist, have both taken delivery of Spirit Digital 328s for use at their home studios and production companies. Bassist Bruce Turgon has been scoring boxing shows for HBO, and recording music for Showtime's 'Stargate SG-1' entirely on the Digital 328. Despite all his TV work, he has still found the time to write new songs with Foreigner singer Lou Gramm for the band's next album.

"The Spirit 328 has been a great addition to my studio," explains Bruce. "When digital boards first started coming out, they were so tedious. But the 328 is so intuitive and easy to get around on... I hardly ever have to look at the display."

Aside from the desks' ease of use, Bruce is particularly fond of the Digital 328's mic pre-amps and EQ. "They're a lot smoother and warmer than most," he says, "I also like the on-board Lexicon effects. The choruses and delays are all very useful and sound great. I use them for most of my band instrumentation stuff across acoustic guitars, snares and things like that."

A former owner and fan of an analogue Spirit Auto 24 console, Bruce has gladly embraced the digital mixing revolution.

"I've recorded things on the 328 that sound better than many big studio records made 10 years ago," he says. "The purity of sound and the control with a board like this is just amazing. If you have a good idea or song, you now

have the means to really exploit it, whereas even five years ago, it was very difficult to get it to master-quality level. The 328 is a really cool piece."

Drummer Ron Wikso's impressive biography includes tours and recording with Cher, David Lee Roth, Foreigner and Bon Jovi's Richie Sambora. He acquired his Digital 328 in February and is currently using it to record several LA-area bands, as well as to add live drums to various albums, jingles and other projects. His next major project will be an album with REO Speedwagon guitarist Dave Amato, and guest artists including members of Bon Jovi, Santana and REO Speedwagon, to be recorded on the 328.

"I'm really thrilled with the way the 328 sounds," says Ron. "The mic pre-amps and converters are all really clean. With my previous console, I was using external mic pre-amps, but the 328's pre-amps sound so good that I'm just using them."

He also picks out the flexibility and ease of routing as a major benefit. "I can leave my favourite mic plugged into one channel and send its signal to any of the tape channels. Before, I had to do everything in my patch bay, so it's cool to be able to do all that with a button. Also, the 328's automation is awesome. With the 328, you can make a record that sounds just about as good as you could at a big studio for a lot less money."

# RON WIKSO & BRUCE TURGON

"I've recorded things on the 328 that sound better than many big studio records made 10 years ago."

BRUCE TURGON, FOREIGNER

"The 328's automation is awesome."

RON WIKSO, FOREIGNER

Bruce Turgon

# NO FOREIGNERS TO SPIRIT DIGITAL 328

Jon Ernst, known to millions as 'Pianoboy' from his five seasons as musical director and keyboard player for MTV's hit game show 'Singled Out', is now using a Spirit Digital 328 in his home studio to score music for films and television.

"The Spirit is so easy to use," explains Jon. "I converted from a 16-channel analogue board to the 328 over the Christmas holidays and I haven't had any down time from the minute I plugged it in. And, with the Lexicon processing built in, I've practically stopped using all of my outboard gear. I don't need it. Everything I want is right there in the desk."

Jon is currently using his Digital 328 to record underscores for VH-1's 'Behind The Music', and to score the upcoming independent film 'George's Auto'. He's also using the desk to record demos for a solo album produced by Bob Marlette (whose credits include Black Sabbath, Judas Priest's Rob Halford, Sheryl Crow and Tracy Chapman), and contributing 328-recorded tracks to the upcoming movie 'The Sterling Chase'.

As a recording artist, Jon's compositions have featured in numerous networks and shows, including 'Melrose Place' – a nightclub scene in one recent episode featured Jon performing two of his songs.

# JON ERNST

"I've practically stopped using all of my outboard gear. I don't need it. Everything I want is right there in the desk."

JON ERNST, MUSICAL DIRECTOR

# SCORES WITH SPIRIT



"The ability to instantly recall settings from the soundchecks makes life for our engineers so much easier...We found the mic pre-amps are excellent quality, there's lots of headroom and the low pass filter gets rid of the rumble on stage."

ANDY LINKLATER, HEAD OF SOUND, ROCK GARDEN



House Engineer Ben Landers

# DIGITAL 328 LIVE THE ROCK GARDEN

London's Rock Garden, one of the capital's most famous live music venues, has taken delivery of a Spirit Digital 328. The venue that has played host to everyone from U2 to Catatonia is delighted with their new acquisition. Head of Sound, Andy Linklater, explains their choice of console:

"The main reason we chose digital is the amount of bands we have here in one night, which can be as many as six. The ability to instantly recall settings from the soundchecks makes life for our engineers so much easier. In addition to the front of house mix we also run the monitor mixes from the 328. We can easily send three monitor sends from the console, two for vocals and one for the drum monitor.

"We found the mic pre-amps are excellent quality, there's lots of headroom and the low pass filter gets rid of the rumble on stage. The individual meters for each channel are very good and the E-strip is just brilliant. We often have to make quick decisions. If a bit of feedback occurs or there's a guitar solo coming up, we need to get to that channel quickly. With the E-strip it only takes a touch of a button and you're there.

"A really, really useful thing for us is the query mode. It's very quick and simple to find out what the status of the board is – which channels are in phase, which channels are EQed and which channels are routed to groups or to mix. It's a really useful tool. When we first changed from analogue to digital, we were a little apprehensive but after two or three days using the board all the engineers found it so much easier to use and the sound quality to be so much better. We think it's the way to go."

# DOUG BECK



"I also liked the built-in effects

– the Lexicon effects sound good.

And I like the way it's laid out. It's not complicated to use. It just seemed like I could sort of get the best of everything I needed in the Spirit."

DOUG BECK, PRODUCER/REMIKX

# PUTTING 328 IN THE REMIX

Doug Beck, independent producer/remixer and half of the remix team Boris and Beck, has got an awful lot busier over the last 18 months. Not long after teaming up with DJ Boris, also NYC-based and also associated with Reel Tyme productions, an early remix of theirs attracted record company attention, and it wasn't long before Boris and Beck were remixing Boyz II Men, Shania Twain, The Fixx, Cyndi Lauper and Céline Dion.

He's now using two Spirit Digital 328 consoles for all his remix and production work, operating in linked mode. Commenting on the strengths of the 328, he identifies: "The ability to recall mixes, because I could be working on a remix today, then another session tonight, then another remix tomorrow. I need to be able to go back and forth between them as seamlessly as possible. I also liked the built-in effects – the Lexicon effects sound good. And I like the way

it's laid out. It's not complicated to use. It just seemed like I could sort of get the best of everything I needed in the Spirit."

Beck uses his 328s in a Mac-based recording setup, with a Korg 1212 I/O interface. Though some minor number-crunching can be involved in the remix process, using your ears is more important, explains Doug: "Once you start adding other elements, the vocal can start to seem out of time. It seems like all through the mix I'm tweaking and nudging because, as I add other instruments, the track can start to feel different. Boris and I do aggressive 'progressive-style' remixes. Very drum and percussion heavy."

The 328's user interface very much suits Beck's working practices. "The 328 is more board-like than computer-like. And the fact that the channel strip is there. Even though it's laying the other direction, it still makes it very simple to me to select a channel,

grab a knob and know what you're doing. I have enough screens here with computers and keyboards. I wanted my console to sort of still act like a console. But I wanted the benefits of automation, built-in effects, being able to recall mixes."

Also important was the desk's low-end. "The slam comes from the low end, mostly in the drums. Sometimes I'll leave a bass line out completely because it can bring the track's energy down. For club records, the kick occupies more space than the bass and is dominant in the lowest frequency area. The two Spirit Digital 328s have made a huge difference to the low end. It's really tight and the separation is great. When we finished our first mix with the consoles, everyone just went 'Wow'."

FROM AN ARTICLE FIRST PUBLISHED IN EQ MAGAZINE



Any multi-channel digital recorder or recording system that uses the ADAT Optical or Tascam TDIF digital interfaces should be able to connect easily to the Spirit Digital 328. In addition, some systems, such as Pro Tools, use multiple sets of stereo digital connections to carry their inputs and outputs, and these can also be linked to the 328 via one of the optional breakout boxes.

Digital audio interfacing can throw up unexpected problems, however, and until you try out a given combination of digitally-linked audio devices, it is hard to rule out the possibility of a compatibility problem. To make things easier for everyone, Spirit is regularly trying out current and forthcoming digital audio products to test their suitability for use with the Digital 328. Visit the Digital 328 website ([www.digital328.com](http://www.digital328.com)) for the latest info. In the meantime, here's a list of some of the multi-channel systems that have been tested with the 328, and are recommended for use.

## APPROVED HARDWARE

# 328 INTERFACES



### 8 x Analogue I/O Tape Interface

TDIF on one side, with eight analogue phono inputs and eight analogue phono outputs on the other. Allows analogue multitracks (eg. Fostex R8) to be connected to the 328 1U half-rack space.



### 4 x Pairs AES/EBU Interface

TDIF on one side, with four pairs of AES/EBU connectors on the other side. Allows multitracking via AES/EBU, eg. with Pro Tools. 1U half-rack space.



### 8 x Mic/Line Interface

TDIF on one side, with eight mic inputs on the other, with gain control, HPF, insert point, quarter-inch jack output, and 4-stage meter per channel. The mic pre-amps are Spirit's famous UltraMic+ design, as on the 328 itself. 2U 19 inch full rack space.

### PRO PCI CARDS

- Lexicon Studio System
- CreamWare Pulsar
- Sonorus Studl/O
- Soundscape Mixtreme
- RME Digi 96 Series
- E-MU Audio Production Studio
- Korg 1212
- SEK'D Prodif Series

### DIGITAL TAPE RECORDERS

- Alesis ADAT Classic, LX20, XT20, A12, BRC
- Tascam DA-38, DA-88, DA-98
- Fostex RD-8

### HD RECORDERS

- E-MU Darwin
- Soundscape System
- Fostex D-80, D-90, D-160

### 328 AUDIO INTERFACES

Three optional interfaces are available to add extra analogue or digital inputs and outputs to the Digital 328, by converting the two sets of 8-channel TDIF connectors (corresponding to channels 17-32) into other formats. One box provides eight line level analogue inputs and eight analogue outputs, another provides four pairs of stereo AES/EBU digital I/O, and the third provides eight mic inputs, with HPF and metering, as on inputs 1-16 on the Digital 328.

Because there are two TDIF connectors, **any** combination of two of these boxes can be used on a single console, eg:

- 16 extra mic inputs, giving 32 mic inputs in total (2 x Mic/Line Boxes)
- 16 extra channels of AES/EBU (2 x AES/EBU box)
- 16 analogue inputs and outputs for analogue multi-tracking (2 x 8 i/o box connected to T/DIF slots).
- 8 extra mic inputs plus 8 extra channels of AES/EBU I/O (mic pre-amp box plus AES/EBU box).

**AES/EBU (or AES3):** A digital audio interface standard for stereo signals. The letters stand for Audio Engineering Society and European Broadcasting Union.

**Aliasing:** Distortion in a digital audio signal, produced by input frequencies that exceed one-half the sampling rate.

**Anti-Aliasing Filter:** A filter in an analogue-to-digital converter which passes only that part of an analogue signal below one-half of the sampling rate.

**Asynchronous:** Two or more digital signals in which the clocks are not synchronised.

**Azimuth Recording:** The method used in DAT recorders, ADAT™ and DTRS format recorders, in which rotating heads placed at an angle to the passing tape write and read tracks diagonally across the tape.

**Distortion:** Undesirable degradation of an audio signal between the inputs and outputs of a device.

**Dither:** Low-level noise added to a digital signal to improve quantising linearity, and therefore audio quality, especially when reducing the bit resolution of a signal – e.g. taking a 24-bit signal down to 16-bit so that a DAT recorder can record it digitally.

**FSD:** Full scale digital – the analogue level at which an analogue-to-digital converter reaches the end of its number range. Also called 0dBfs.

**Headroom:** Range of signal levels between standard operating level and level at which clipping or overload occurs. High-bit – (as in “high-bit recording”) using sample resolutions greater than 16-bit.

**Jitter:** Small, instantaneous timing errors in the timing of signal changes or transitions in a digital signal, leading to distortion. See phase-locked loop.

**MMC:** MIDI Machine Control. A protocol which allows the transport controls of compatible equipment to follow fast forward, rewind and other commands generated from the master device.

**Noise Shaping:** Using non-random noise, with certain frequency bands lower in volume, to dither a signal, thereby achieving an improved signal-to-noise ratio.

**Non-Linear:** A data storage and retrieval method which allows instant manipulation of data from any point in the data sequence.

**Oversampling:** The use of very high sampling rates (multiples of the base sample rate) in converters, allowing simpler analogue filters. This results in improved audio quality.

**PCM:** (Pulse Code Modulation) The most common technique for converting an analogue signal to digital.

**Phase-Locked Loop:** An electronic circuit which restores a jittery signal to a stable timebase.

**Quantisation:** The division of an input voltage (representing an audio signal) into discrete bands in order to derive whole numbers that can be used in digital processors.

**RDAT:** Stereo digital recording format using rotary heads on 3.81mm tape cassettes. More commonly called DAT.

**Random Access:** The retrieval method used by non-linear data systems.

**Resolution:** As in sample resolution. The accuracy with which the original analogue audio signal is measured. More bits (i.e. higher resolution) allow a more faithful recording to be made, and therefore mean better sound, but can place more demands on processing, data busses etc.

**Sample Rate:** The rate at which samples are generated or passed through a digital audio system – 48kHz, 44.1kHz, and 96kHz are among the most commonly-used rates.

**Sampling:** A process in which some continuous variable is measured at discrete (usually uniform) intervals.

**Sony 9-pin:** A remote control protocol which allows control of transport functions of remote devices, particularly professional VTR and some multitrack audio recorders.

**SPDIF:** (Sony/Philips Digital InterFace) ‘Consumer’ digital audio interface very similar to AES/EBU. Carried via coaxial phono or optical connections.

**Wordclock:** A timing reference signal, shared and passed between digital devices, which ensures accurate and consistent timing of digital audio so that data can be transferred between devices successfully.

# A-Z OF DIGITAL AUDIO

In the modern studio, integration of equipment lets you work faster and smarter. Thanks to its advanced MIDI support, the Spirit Digital 328 can be controlled from graphic panels, called MIDI Maps, in most major sequencer programs. So, if you like to work mainly from your computer, you can make changes to your mix without moving over to the 328, or use MIDI Maps to edit the Dynamics or effects processors. Maps are available for Cubase (Mac and PC), Logic (Mac and PC), and Cakewalk Pro Audio (PC only), all of these maps can be downloaded from the Digital 328 website ([www.digital328.com](http://www.digital328.com)).

## USING MIDI MAPS

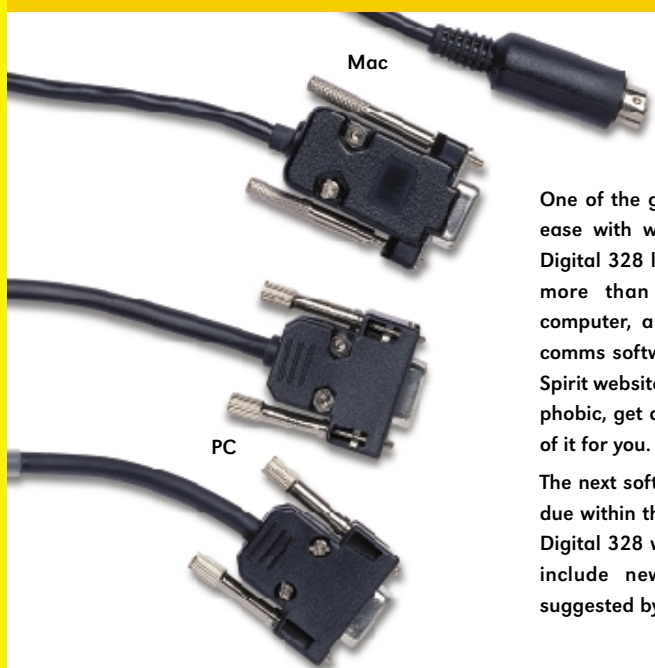


## LATEST SOFTWARE RELEASE

One of the great advantages of digital mixers is the ease with which they can be upgraded. The Spirit Digital 328 lets you upgrade its system with nothing more than a standard Mac or PC-compatible computer, a single cable (shown here), and simple comms software which can be downloaded from the Spirit website if you don't already have it. If you're net-phobic, get a friend or your Spirit dealer to take care of it for you.

The next software release for the Spirit Digital 328 is due within the next few weeks, so keep an eye on the Digital 328 website for more details. Release 1.5 will include new features and small improvements suggested by our users including:


- An option to sync to Superclock (which is 256 times more accurate than wordclock)
- Faster system booting on power-up.
- FX1 can now be routed into FX2, in order to allow multi-effects.
- MIDI notes can now be assigned to the transport controls, to allow remote control of sequencers.
- Fixed group and channel linking with linked desks.
- New Dynamics Presets
- New MIDI controller Presets







TDIF is a registered trademark of TEAC Corporation  
 ADAT is a registered trademark of Alesis Corporation  
 ProTools is a registered trademark of Digidesign

 This equipment complies  
 with the EMC Directive  
 89/336/EEC

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