



# PINK

*rules as concert cash crashes*

## CX ON THE ORIENT EXPRESS

Macau opens massive venues but who are the audience?

Chinese lights and sound:  
*The good, the bad and the very ugly*

Stage managing ZAIA –  
The world's toughest gig?

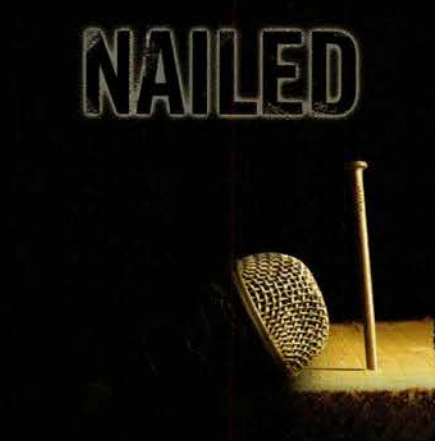
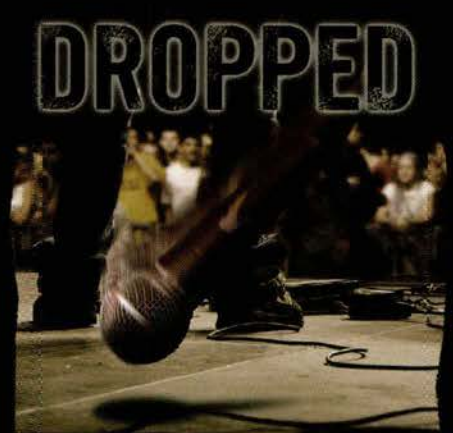
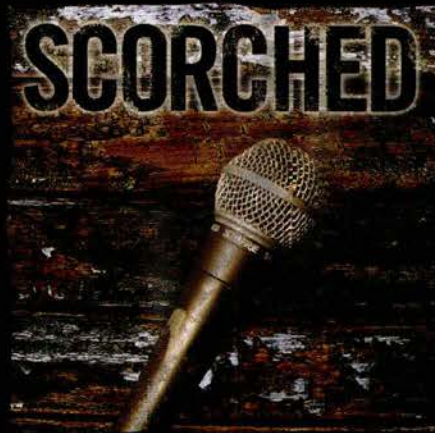
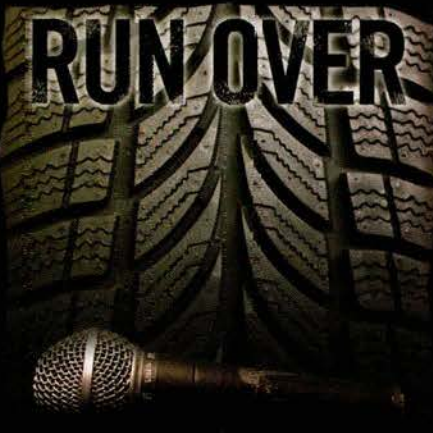
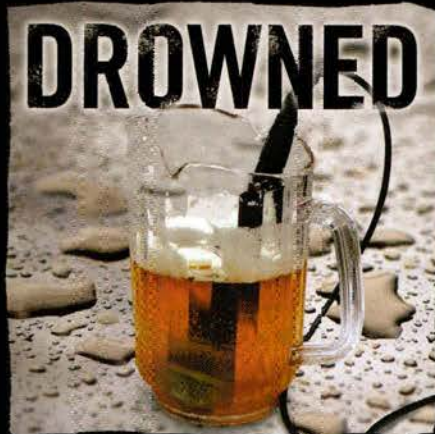
REVIEWED:  
*Soundcraft Vi6  
ChamSys MagicQ  
Tannoy QFlex  
Audio Technica m3 IEM*

**CUE03** Entertainment Training Resource

Julius Publish...  
ISSN 1320-5595  
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NEWS: CRASH FOLLOWS BOOM, SACKINGS, SHAFTINGS AND RENEGOTIATING THE NEW STAGESCAPE OF THE BACKSTAGE TECHNICAL BIZ! CX GOES WHERE THE ACTION IS ABOUT TO HAPPEN AND ASKS THE QUESTIONS.

THE NEWS MAGAZINE FOR ENTERTAINMENT TECHNICIANS AND MANAGERS



*No SM58's were harmed in the making of this ad. The images above are intended to depict situations involving Shure products, such as Shure quality tests or end-user experiences. To avoid possible damage or harm, do not attempt to replicate these situations.*

## SHURE SM58 - NINE LIVES INCLUDED

For decades, the legendary Shure SM58® microphone has suffered the ravages of rock and roll, proudly bearing its marks for all to see. Generations of performers have entrusted their voices to its signature sound. Find out why the world's most abused microphone is still its most popular.

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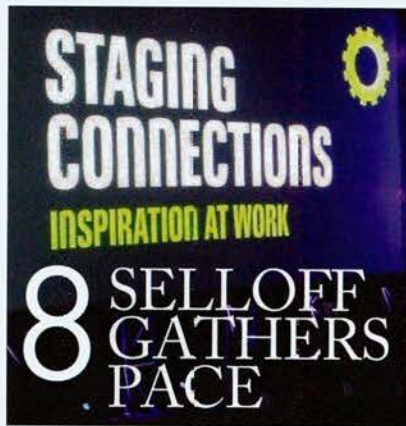
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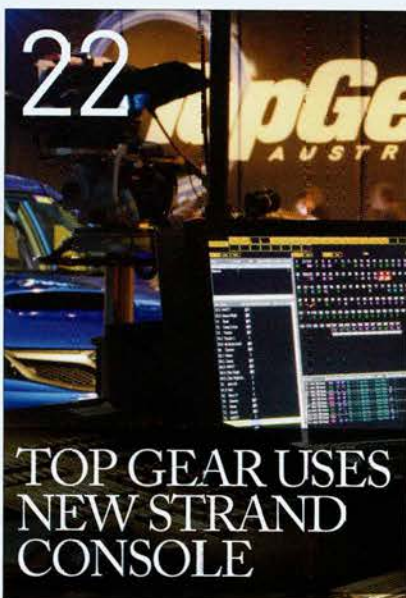
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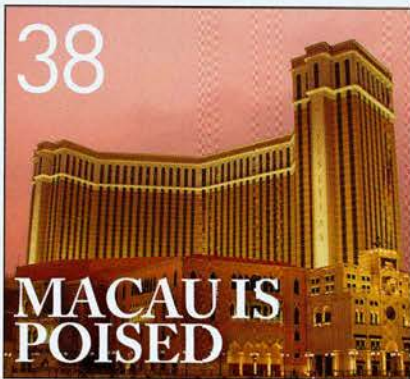
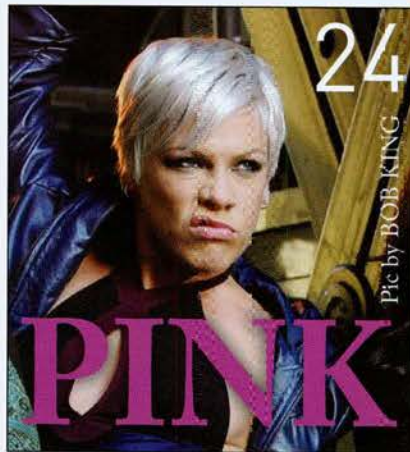


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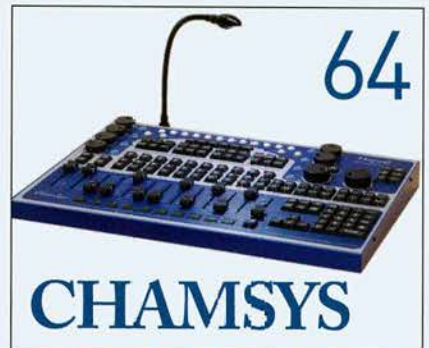
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## WAY BACK WHEN



thinking sound



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narrow coverage

50° h  
50° v

**UPQ-1P**  
wide coverage

80° h  
50° v

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ISSN 448-2010

CX Magazine is published every six weeks by Julius Publishing Pty Ltd ACN 117 748 777

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Mail: Locked Bag 30, Epping NSW 1710 Australia.

Call: 1-800-635 514

NEW EMAIL: juliusmedia@mac.com Web www.juliusmedia.com

Publisher, Managing Editor: Julius Grafton Editor: Andy Mackenzie NEW EMAIL: juliusmedia@mac.com call +61 2 9638-5955

Technical Advisors:

James Den-Ouden, Rob Zimola

Sales Steve James

NEW EMAIL: juliusmedia@mac.com direct +61 2 9638 5955

Newsagent distributor: NDD

Publishers PA: Monique Wilson

Web by ThinkFirst

Print by Superfine

Design by Bite Communications



## CUE03

### Entertainment Training Resource

This magazine contains much information which is a direct resource for anyone studying from the new Entertainment Training Package, named CUE03. From 2006 we will start to map certain articles direct against the relevant Unit of Competency within the package. This makes CX magazine a very cost effective resource for schools, colleges, and universities. Note that we offer a copyright release where articles in CX Magazine may be photocopied and distributed to students within an accredited course.

# EDITORIAL

## MONEY

This issue spans the most volatile of times when the largest crisis of several is the wild gyrations of the Australian dollar exchange rate against the American dollar. We cover this news inside, meanwhile the swings exceed profit margins so some people have to sell things and run shows at a loss. There will be failures in the months ahead – retailers, production suppliers, importers and promoters. No one is truly safe.

## PREVIOUS CRISIS

On the CX News website at juliusmedia.com we compare previous financial crashes starting in 1973. History suggests that what we are now going through is but part of the whole cycle. Panic? That doesn't help. Worry? It's a bit like a rocking chair, it'll keep you busy but it won't get you anywhere.

## MACAU REVELATIONS

CX visited the province just prior to presstime to see first hand the forest of cranes and the flash of welding in the night sky. The avalanche of new audio, lighting and video equipment plus crew set to head there in 2009 attracted us, and we arrived just as the balloon went up and the projects started to scale back. It's happening right now, and the forward picture is murky.

## OPPORTUNITY

Every one of the previous crashes has produced realignment where winners emerge. An example just now is the cherry picking of Staging Connections venues by local operators. In the 1990 crash A1 Audio emerged with the assets of Star Capital. It eventually formed the nucleus of what is today Norwest Productions – Australia's largest pro audio firm.

## FINALLY

Please have a relaxing end of year break! All the insecurity surrounding the global economy will abate and a form of normality will return soon. Count your blessings – health and happiness can't be bought (although money does help). If you're wedded to a big mortgage then consider quitting it. The CX team strangely all rent houses at the moment, those who own are investors renting to others. It isn't so bad renting!

*Julius*

## WHAT HAPPENED TO ALL THE MONEY??

It's all tremendously confusing. The American banks started getting into trouble because they didn't have any money. Apparently this is because they were lending money they didn't have to people who couldn't pay it back so they could buy things they couldn't afford, which all sounds pretty logical. Then the weird stuff started to happen. The Australian banks came out to tell us that they were OK, their 'exposure' was minimal, and everything was tickety-boo. Instantly the value of the Aussie dollar crashed. Then the US government came up with the brilliant idea of turning the mint up a notch to produce more cash. I always thought this was meant to devalue the currency, but up goes the US dollar again. There's probably some economist out there who'd be happy to explain it all, but I probably still wouldn't get it. Besides, my mother said never to talk to that kind of people anyway.

The net result seems to be this: everything that comes from overseas costs more. Everything that doesn't, doesn't. Borrowing money costs less, because the economists want us to spend more of it. So borrowing more money to buy things that cost more because our economy is secure is good for the economy and the country. Bloody hell.

## CHRISTMAS TIME AGAIN

You can tell by the sound of cheesy carols pouring from shopping centres bedizened with sparkly stuff and festooned with shimmering lights – all intended to encourage you to spend, spend, spend.

Why not spend the Christmas break this year giving people (and yourself) something that counts – a nicer day. Say hello to someone in the street. Say thanks to the guys who've collected your bins all year. Get your kids a present they can enjoy with you, rather than one that keeps them out of your hair. Don't drink and drive – or better yet, don't drive at all if you can avoid it, walk or ride a bike instead. Get out, breathe some fresh air, relax and enjoy the sunshine. Enjoy, and we'll see you next year.

*Andy*

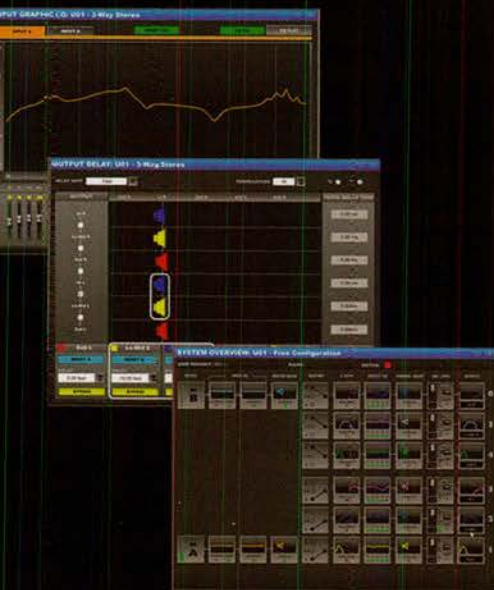


# DC-One

24-Bit Digital Sound System Processor



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# CXNEWS

## DEVICES, PEOPLE AND CONCEPTS

# SELLOFF GATHERS PACE

*Staging fogs up as  
new management  
seeks circuit breaker*



The split and sale of Staging Connections Group companies is underway as new management learns the business and cuts costs. Morale on the frontline has collapsed. Essential Lighting (UK) was sold off to Production Resource Group (PRG) just 11 months after acquisition, reducing group debt by A\$16 million but at a cost of over \$3 million.

Staging Connections Group's core activity is the events services business across Australia and in some Pacific locations. Most of this work is provided to corporate clients of hotels and resorts where Staging base resident staff and equipment, sharing some proceeds with the hotel. This business was acquired by a listed share market entity called AAV who then set about expanding through acquisitions.

Over four years the group has grown into a A\$190 million conglomerate with

some questionable prices paid. "For me, the beginning of the end was when we paid A\$42 million for Bytcraft", an insider told CX. Other high priced acquisitions include Exhibitions Trade Fairs (ETF) which was purchased for around A\$13 million, and which then went on to spend several million for a half share of some UK trade shows.

With A\$100 million debt reduced to A\$84 million by selling Essential Lighting, other assets on the chopping block include the majority stake in Gearhouse Dubai and Bytcraft itself. Rumours abound of a Bytcraft sale to PRG, the USA based group who purchased Essential Lighting but it is thought that PRG are offering considerably less than \$42 million. Staging also own businesses in Asia.

Meanwhile new management is flying  
*Continued page 10* ▶

## PRICES ROCKET AS BUCK CRASHES

*Exchange Roulette Hammers  
Importers and Promoters*

There's never been a time like this; the Australian dollar has become unreliable after a long period where exchange movements were slow and almost predictable. In July we almost got 1:1 with the US dollar, at presstime we get 66 American cents for one Aussie and a week before that just 61.

It means really big extra costs to buy US currency goods and a lot of American and Asian equipment comes costed in US dollars. Many touring acts are also contracted in US and the tours underway this summer were almost all signed when the local dollar was at its best.

Tour promoters are rightly freaked out, Andrew McManus told media that he cancelled and renegotiated all his tours, a gutsy thing to do given the hard nosed nature of agents who typically work from Los Angeles. He suggested one major tour underway at presstime would tank to the tune of two million despite full houses. Using our charts a \$2 million loss could happen on a tour costing US\$3.7 million signed at a 98c rate (July) which was settled at 61 cents (October).

### AT PRESSTIME

**US\$1000 Widget**  
A\$1020 to buy in JULY  
A\$1470 to buy in NOV  
Difference 40%+

**Worst since July**  
US\$1000 Widget  
A\$1020 to buy in JULY  
A\$1640 to buy in OCT  
Difference 60%+

**Promoter's nightmare**  
Tour fee US\$200k signed in July  
A\$204,000 based on July exchange rate  
A\$327,868 in Oct  
A\$123,868 extra  
A\$294,118 in Nov  
A\$90,118 extra

*Continued page 10* ▶

**iLive**   
digital

Load in... turn on... chill out



*Allen & Heath iLive:  
Easy Listening*

Allen & Heath's iLive digital mixer makes set up in any venue a whole lot easier.

Position the iDR10 rack on stage and an iLive surface at FoH, connect them with a pair of Cat5 cables, and recall your settings from onboard or a USB key.

Within seconds it'll feel as familiar as your old analogue desk, and with sound quality you never thought you'd hear from a digital console.

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*Continued from page 8...*

around trying to learn about the business, which spent A\$4 million on travel last year. The board recently appointed Tony Chamberlain as CEO, he joined his former Chubb colleague Jeff Watson who in turn replaced the former Chief Financial Officer earlier this year. The new CIO (I.T. guy) is also ex Chubb – a firm that had a chequered history. I.T. has been a headache at Staging since the firm embarked on an expensive and ill fated Oracle adventure to integrate all systems. It chewed up millions, distracted everyone and eventually drove out the architect of the disaster.

Tony Chamberlain stumbled early with the poorly handled execution of popular Chief Operating Officer (COO) Ben Ashton whose departure was speculated on the CX website several days before staff was told. “Details of Ben’s departure from the Company were advised to the industry via CX magazine’s online e-newsletter however the magazine took a sensationalist and somewhat biased view of the situation. I am disappointed that the information regarding Ben’s departure has been leaked to CX magazine prior to an internal announcement being made as it only serves to destabilise the business” wrote Tony Chamberlain in a staff memo that was promptly leaked to CX.

The line from the boss was that Staging has an infrastructure more suited to a \$500 million company, and that costs must be cut. “This is a very tough market where budgets are shrinking so we must find better ways of delivering our event services”, wrote the CEO.

Removing the COO still means a year’s salary for Ben Ashton under the terms of

his contract, but perhaps due to the uproar Tony Chamberlain told CX at presstime that he would himself take over those responsibilities. “This is a people industry and you need to be in the front line – and accessible at all times. It’s also where my expertise lies.”

Given the cost to the company, there’s little logic in removing the only senior executive with actual industry experience. Ashton’s mistake appears to be that he applied for the CEO job and was passed over in favour of the external candidate who would be on similar terms to the guy he replaced. In his last year with Staging Connections Michael Gardner was paid over \$A700,000.

History will not be kind to many of the players in this saga which has seen the share price of the group crash to just a few cents, from a high around A\$1.60 just 12 months earlier.

The suits came in and removed the original management in a way that created new competition. Things became personal early on and the end play is that whenever a venue contract is renewed there is a procession of former Staging staff fronting new bids which drive down the return from the venue to the winning company. The venues love it.

Lessons haven’t been learned – mainly that events people are not commodities and are fuelled by creative passion. Staff at Staging Connections have highly specialized skillsets. Recent reports of redundancies serve to erode confidence the firm can actually serve its customers.

“Staging Connections seems to be programmed to self destruct”, writes an insider “and it appears that no executive has the skills to defuse it. While we’re on

nature of at least one major importer. “I was phoning my rep when the dollar strengthened reminding them to drop prices. Took some pressure to get sorted”, he told CX.

Those with longer memories recall when the exchange rate was more volatile and when forward cover, a form of insurance, was purchased to protect a position. It appears not many people had protection headed into July, since the trend was steady and upwards. Today almost everyone CX spoke to has secured their deals, or deferred settlement in the hope the dollar will strengthen.

At presstime with the current US rate 0.68c, the forward cover rate we had quoted in three months (mid February) was at 0.63c. I’d buy it now if I thought things were going to get worse.

Exporters are delighted since they get considerably more Australian dollars or they are able to drop their US\$ prices and

## WHO IS PRG?

Production Resource Group – PRG – is the world’s largest specialised technical production house. It operates from 16 offices around the world, and an Australian office is a logical progression. Within PRG you’ll find an A to Z of leading sound, lighting and staging firms, including Vari-Lite’s hire operations.

the subject, why do we pay them hundreds of thousands of dollars while we have crew meetings to discuss why us as technicians are costing so much in overtime?

“The general feeling within the rank-and-file is that Staging Connections would operate a whole lot more efficiently without Bases and just operating between venues. All each area really needs is a GM, a Crew/Operations Manager, and possibly a Sales rep. Trade the Warehouses for offices, sell all the gear that we never use or need, send the gear that we do use out to the venues and minimise the number of vans and trucks we have.

“Sales Strategies may have to change, from putting on shows that we can barely staff or supply gear for, to utilizing the actual resources that we have. We need to stop trying to do everything and start focusing on the things that we do well.

“Staging Connections has been hobbled by the movements of the board. How can it be acting in the company’s or the shareholders interests when every action it makes seems to damage the business. I’m bewildered and I’m waiting for this ship to sink. I hope that gives some indication of morale on the floor.”

CX

*Continued from page 8...*

In the world of equipment sales the wild gyrations of the currency have created a varying form of panic amongst importers. Some buy in Euros or UK Pounds, which have been much stronger against the dollar. Those dealing in US currency have been hammered.

Some importers also export (such as Hills SVL, LSC, Jands and Acoustic Technologies) and for those firms the Holy Grail has always been to try to match inflow and outflow of currencies. Pure importers have responded to the situation by issuing fast pricelist rises as the currency moved down, in some cases annoying retailers who didn’t see fast price falls as the currency progressively strengthened.

“How do I know if the stock I get today was paid for in July?” asked an MI retailer who would not allow his name be used, mindful of the notoriously aggressive

become more competitive. A low dollar opens the way for more Australian shows overseas, so there are always two sides to this story.

CX



## CX NEEDS YOU!

### Are YOU the Secret Listener?

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Do YOU know how to?

Could YOU be the contributor

we’re looking for?

Send your submissions to

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## e815

### Vocals

The e815 is the right mic for anything you've got to sing or say. You can even use it on instruments!

- Rugged metal construction
- Handy silent on/off switch
- Affordable microphone solution
- 2 year factory warranty

## e835

### Lead Vocals

The e835 has become the new standard in stage mics. Perfect for lead vocals, the e835 delivers that rich, clean powerful sound you need.

- High output and low noise allows vocals to cut through
- Widest frequency response in its class means more accurate vocals
- Shock mounted capsule reduces handling noise
- 2 year factory warranty

## e840

### Lead Vocals

Developed to cut through high on-stage levels.

- Excellent vocal projection
- Rugged, durable construction
- Hum compensating coil
- Shock mounted capsule reduces handling noise
- 2 year factory warranty

## e845

### Lead Vocals

The e845 has become the new standard in stage mics. Perfect for up-front lead vocals on stages where feedback is a concern.

- Tighter pattern excels when feedback is a concern
- Widest frequency response in its class means more accurate vocals
- Shock mounted capsule reduces handling noise
- 2 year factory warranty

## e865

### Fine Vocals

Bring out detail in your vocals that most mics miss. The e865 is the best.

- Highly sensitive condenser microphone for increased detail on delicate vocals
- Rugged metal construction with integrated shock mount reduces handling noise
- Studio sensitivity in a durable stage microphone
- 2 year factory warranty

### e packs

Three most popular evolution hand helds now available in a cost effective package.

- Choice of e835, e835s or e840
- High quality mic stand with boom
- 5m XLR cable
- Mic clip and pouch

## e935

### Lead Vocals

The e935 pro-grade mic is the choice of professional sound engineers in every genre. It delivers crisp, up front vocals that really shine.

- Professional, rugged stage microphone for lead vocals
- High output and clean EQ allows vocals to cut through
- Handles exceptionally loud vocals without distorting
- 2 year factory warranty

## e945

### Lead Vocals

The e945 pro-grade mic is Front-Of-House mixer's first choice when feedback is an issue. It delivers the same super sound as the e935.

- Professional, rugged stage microphone for lead vocals
- Narrower pattern for use when feedback is an issue
- High output and clean EQ allows vocals to cut through
- 2 year factory warranty

## e965

### Lead Vocals

The e965 condenser mic is our finest evolution series vocal mic.

- Hand held vocal
- True large diaphragm, condenser
- Switchable pick up pattern
- Switchable pre-attenuation + low cut
- 2 year factory warranty

## e606

### Guitar Cabinet

The e606 is the right mic, designed to squeeze every last drop of sumptuous tone from your amp.

- Exclusive flat design hangs by XLR cable, eliminating need for stand
- Easily and accurately handles loud guitar cabs without distorting
- Includes clip & protective pouch
- 2 year factory warranty

## e906

### Guitar Cabinet

The e906 is a professional grade mic that knows what your amp sounds like, and simply makes it louder. It's the secret of your favourite players.

- Exclusive flat design hangs by XLR cable, eliminating need for stand
- 3 position EQ allows for quick and easy adjustments
- Easily and accurately handles loud guitar cabs without distorting
- 2 year factory warranty

## e614

### Acoustic guitar

The e614 is designed to capture the sound of YOUR acoustic guitar in the cleanest way possible. You, won't believe how great this mic sounds.

- Extremely small, sensitive mic captures full nuance of your acoustic guitar with accuracy
- Includes clip and protective pouch
- Superb on acoustic guitar, where delicate sensitivity is required
- 2 year factory warranty

## e914

### Acoustic guitar

The e914 is a professional grade mic designed to capture the sound of YOUR acoustic guitar flawlessly. It's the best mic for getting that clean sound.

- 3 adjustable switches make the e914 a versatile workhorse in many applications
- High output and low noise to help cut through the mix
- Handles exceptionally loud sources without distorting
- 2 year factory warranty

## e602 II

### Bass drum

The e602 II can make a HUGE difference in the sound your kick drum, which in turn adds power to your band.

- Large diaphragm for accurate bass response
- Easily and accurately handles loud drummers without distorting
- New aluminum body for easy positioning
- 2 year factory warranty

## e604

### Toms

The e604 is designed specifically to capture and mount to your toms. Hear your drums the way you've always wished they'd sound.

- Lightweight, durable, scuff-resistant glass composite housing
- Universal, non marring drum clip included
- Easily and accurately handles loud drummers without distorting
- 2 year factory warranty

## e614

### Drum overheads

The e614 is designed to capture the sound of YOUR drum kit and deliver it to the anxious audience, it's a great mic for your entire kit.

- Extremely small, sensitive mic captures the full range of your drumset with accuracy
- Includes clip and protective pouch
- Superb on drum overheads where sensitivity and full frequency are required
- 2 year factory warranty

## e901

### Bass drum

The e901 is a professional grade mic that gives you that tight punchy kick drum sound you need for a wide variety of music.

- Rugged metal housing with rubber pad easily sits inside bass drum
- Responds quickly to fast bass drum attacks
- Adds snap when used in tandem with the e902
- 2 year factory warranty

## e902

### Bass drum

The e902 is a professional grade mic that grabs the sound of your bass drum and makes it the hugest, most powerful sound in the room.

- Response tailored to provide large and punchy bass drum sound
- Built in mount assures rock solid positioning without worry of losing clip
- Higher levels of output with less possibility of feedback
- 2 year factory warranty

## e904

### Toms

The e904 is a professional grade mic that captures and mounts to your toms. Its punch response really lets you punctuate the mix with great sounding drums.

- Punchy response allows toms to cut through the mix
- Micro design allows for close positioning without being in the way
- Higher levels of output with less possibility of feedback
- 2 year factory warranty

## e905

### Snare drum

The e905 is a professional grade mic that gives your snare the respect it deserves. Snap. Punch. Power. Crisp. Just wait 'til you hear it on YOUR snare!

- Designed to produce crisp and accurate sounds from snare drums
- Small design for close positioning without taking up too much space
- Higher levels of output with less possibility of feedback
- 2 year factory warranty

## e908 D

### Drums

The e908 D is a professional grade condenser mic that clips onto the rim of any of your drums. It's capsule can handle even the loudest levels with ease.

- Small gooseneck condenser mic designed exclusively for drums
- Shock mount clip included for minimal handling
- Includes preamp for both recording and live applications
- 2 year factory warranty

## e914

### Drum overheads

The e914 is a professional grade mic designed to capture the sound of YOUR drum kit flawlessly. The best mic for your entire kit.

- 3 adjustable switches make the e914 a versatile workhorse in many applications
- High output and low noise to help cut through the mix
- Handles exceptionally loud sources without distorting
- 2 year factory warranty

## DICE SPINS A CRAP TURN

### *Macau Slams on the Brakes*

Exporting crew to Macau was a growth industry until now with Australian technicians and designers taking US\$ jobs attracted by low tax rates and a weakening Australian dollar. Now the flood will slow, as massive casino projects are stalled.

Las Vegas Sands have stopped certain projects in the Chinese territory and doubts have arisen as to whether new Casinos and entertainment concepts will open anytime soon. Until now, Cirque Du Soleil was advanced in negotiations for a second and possibly third permanent show in the city, joining the Zaia production at the Venetian.

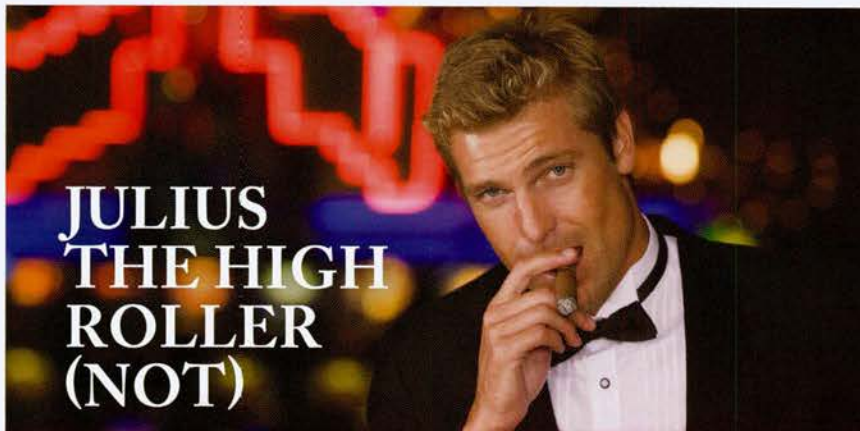
Other entertainment concepts in danger of delays include a Hard Rock Café and a 1,800 seat underwater themed theatre in the City of Dreams, which is slated to open next May. That US\$2 billion casino complex is directly opposite the Venetian, and includes four hotels.

Macau's massive expansion is at risk

due the dual impact of a sudden and unexplained clamp on visitor visas from the Chinese mainland, where 80% of customers originate. Now restrained to three visits per year, this hammered the high roller market. The other reality facing Sands and Melco-Crown is that mainlanders don't frequent the huge retail precincts or go see theatre shows. The clientele are totally different to the Vegas model, on which much of Macau is designed.

Aside from Macau, Sands have a massive project under build in Singapore which may now have a phased opening instead of a big bang at the end of 2009. This project would dwarf the Macau Venetian, with Singapore's Marina Bay Sands to boast more than 1 million feet of convention and exhibition space within the entertainment and gambling complex built at a cost of almost US \$5 billion.

Financing pressures are being felt by Melco Crown and by Vegas Sands, with almost daily news of refinance and scheduling delays hitting our news desk as we publish this issue. CX



I visited The Venetian for a feature in this issue, as an accidental High Roller. On arrival I was swept into a luxurious reception room through a side door. Seated on a throne, swiftly handed a premium drink, I was serviced by the crème of reception crew.

The passport and creditcard were on the silver tray alongside the registration form.

"Mr Grafton you'll be with us four nights, and everything is covered by us", gushed the impeccable young woman in charge as four flunkies nodded and genuflected in my presence. Somewhat startled at the generosity of the management who'd only recently confirmed I may come and do a story, I asked what 'everything' meant.

"Whatever you want, we pay for all extras", she replied. My mind boggled.

"This is clearly mistaken identity", I replied, "since I am here one night and I booked on the internet."

"But you're Doctor Grafton – Luigi Grafton", she said, looking confusedly at the paperwork.

"Not last time I looked", I replied pointing at my passport and creditcard which she had before her.

I was quickly ushered out to the main registration counter sans drink to join the scrum of pushy and impatient mainlanders who just wanted to get to the massive gaming floor. Which I presume is miles from the high roller room with my kinda namesake inside.



### CLAIR APPOINT ISL SYSTEMS

Clair Brothers have appointed ISL Systems (Queensland) as the exclusive distributor of Clair Brothers range of products for Australia, New Zealand and as representative for Asia-Pacific territories.

ISL Systems is headed by Wayne Grosser who has held a long term relationship with Clair Brothers as their distributor in Hong Kong. Mr. Grosser has been established in Australia since 2001 and is actively involved in event production, systems consulting and professional sound and lighting sales.

Larry Howard, Director of Business Development at Clair Brothers says "the appointment of ISL Systems as our distributor in Australia and New Zealand is a timely development given that we are seeing increased interest in our performance products and ISL is well suited to support our efforts there". We are truly excited to be continuing our long-term relationship with Wayne Grosser and ISL Systems. CX

[www.islsystems.com](http://www.islsystems.com)



*A good crowd for the Qflex launch.*

### SYNTEC LAUNCH Q-FLEX

Tannoy have unveiled a new digitally steerable array loudspeaker system known as Q-Flex. The system was launched locally recently and CX attended a briefing on its virtues. Qflex is able to create an asymmetrical pattern which allows similar SPL's both in the near and far field. It is able to steer the beam away from surfaces that cause reflections to frequencies beyond 12kHz.

A review on the system is featured in this issue of CX.

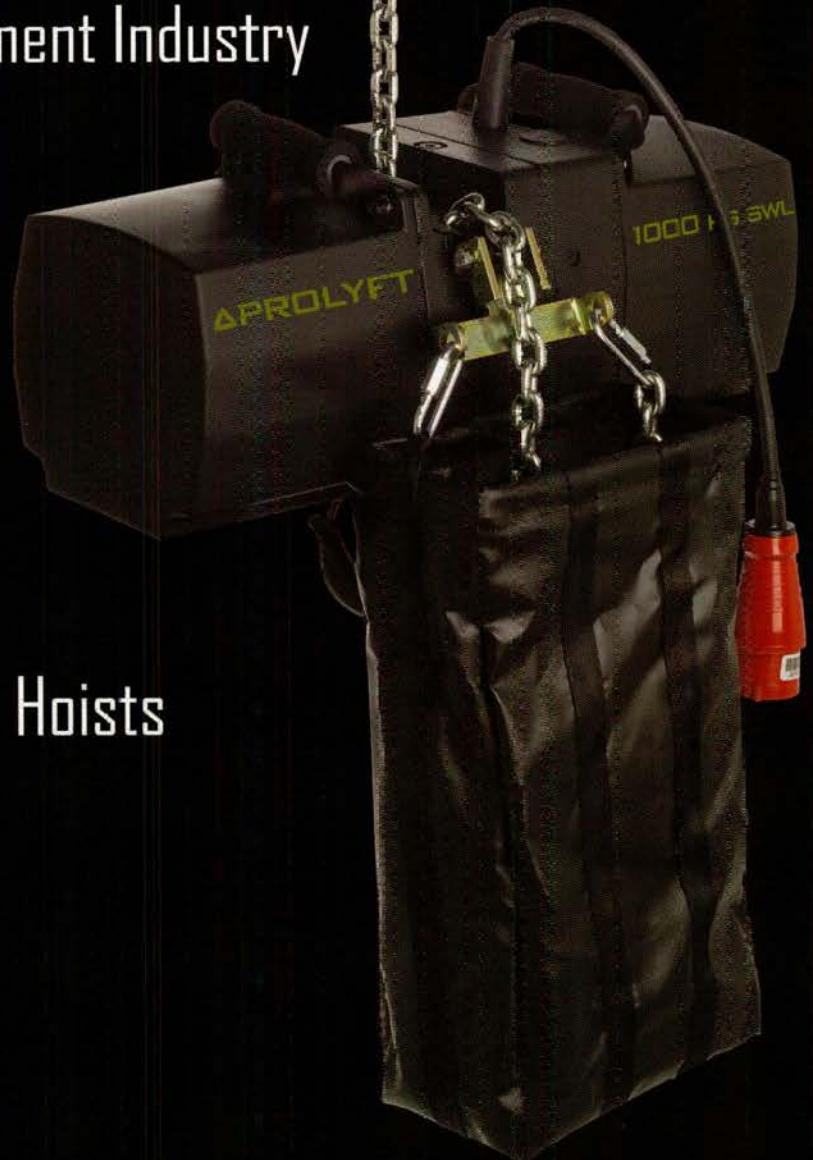
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# OUTLINE STACKS UP



Steve Barton from Cairns Civic Theatre.

## Audio Tech Systems expand

Outline are a European manufacturer of professional audio loudspeakers, controllers and amplifiers who have recently made inroads into the Australian market, courtesy of Audio Tech Systems.

The Butterfly line array is well known in Europe, where it fights against Nexo and L Acoustic in the marketplace. Less known is the Mini COM.P.A.S.S. system, an example of which is installed in the Cairns Civic Theatre. This line array

has a variable waveguide allowing the dispersion to be stepped where things like prosceniums get in the way.

MiniCompass is loaded with 4 x 5" mid drivers, and 2 x high frequency drivers. Two Outline Subtech218 SP subs have been used for the bottom end. These subs are a 2 x 18" front loaded enclosure which was flown on a custom flybar designed by Audio Tech and time aligned to the main cabinets. The entire system is self powered, freeing up floorspace in the Theatre.

More recently Audio Tech have

completed a new installation at St Kilda's Prince of Wales Bandroom, where 6 x Doppia and 4 x Subtech 218 Subs as well as Outline controllers and amplification were utilised.

Pictured is the Kanguru combination where the top box cleverly travels inside the sub. The system is self powered, and may offer more power to size and weight than anything else which fits into a common station wagon. We'll test it soon to find out.

[www.audiotechsystems.com.au](http://www.audiotechsystems.com.au)



## JBL EON REBORN

After 14 years as the best selling powered speaker in pro audio, JBL's EON has been completely redesigned with all new components and sound. Weight has been slashed, power increased and features tuned.

Jands launched the EON to dealers across Australia at a series of functions where the two models – EON 515 (450 watts) and EON 510 (280 watts) were mated with the EON 518S sub. This is loaded with an 18" differential driver

with 500 watts of onboard amp.

A lower powered line, the EON 300 is coming soon, and this includes an unpowdered version, called EON 305.

At the launch, Jeff MacKenzie, Manager of the Jands Technical Resource Group, told guests that JBL rate the EON conservatively and warned that some other manufacturers quote amplifier power in their powered speakers at low impedances, while the actual speakers in the cabinet are clearly rated at 8 ohms.

Such claims mislead purchasers, he said.

[www.jands.com.au](http://www.jands.com.au)



## AT EXPORT LINE ARRAYS

Brisbane based audio manufacturer AT Professional have exported multiple sets of their Blackbird Line Array system this year. Their Korean distributor VIVI Sound have sold six complete systems into major venues in Korea.

In addition Ecler in Europe have installed a Blackbird system in the prestigious Goya Theatre in Barcelona, Spain.

Blackbird is a family of line array cabinets designed and built in Australia, complete with Sound Level Prediction Software. The Blackbird line includes an innovative composite line array solution for smaller touring users.

[www.atprofessional.com.au](http://www.atprofessional.com.au)





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## FIRST CHURCH INSTALL FOR EAW UMX 96 CONSOLE

Crossway Baptist Church in Burwood East have a new EAW UMX.96 Digital Console in their auditorium. Like many growing churches with a youth following, they do full live video support with six cameras and multiple screens and have a heavy online/streaming presence.

Graeme Stevenson at Production Audio Services handled the sale and worked very closely with Crossway personnel in the choice and design of the system.

"The UMX.96 is very intuitive and easy to operate, which is important for us, as most of our operators are volunteers," stated Peter MacLean, Crossway Baptist Church Media Pastor. "Adding to that,

it has comprehensive features and lots of outputs for all our needs. The physical layout is very ergonomically designed and user friendly, with the sloped rear section and 48 input faders always available. And of course it sounds fantastic, with very smooth and musical EQ and dynamics. The sound helps us not only create and craft great music, but also enhance it rather than simply controlling it."

Another part of Crossway's audio upgrade was the addition of EAW speakers and processors. MacLean says, "With this new system we get around 3dB more perceived volume due to the Guinness Focusing technology. We have better level and balance across the whole auditorium, especially at the front now that we're using in-ear monitoring."

[www.productionaudio.com.au](http://www.productionaudio.com.au)

## ENTECH AND CEDIA VOW TO CO-OPERATE

Facing a new competitor within weeks of their trade show next July at Darling Harbour, CEDIA the Custom Electronic Design & Installation Association have announced a co-operation agreement between their organisation and Exhibitions & Trade Fairs, (ETF) the organiser of ENTECH Expo. Under the first phase of the agreement both shows will co-promote and share some intellectual property.

Both ENTECH and CEDIA face competition from the new Integrate Expo, a trade show organised by Alchemedia who publish a growing stable of magazines targeted at the audio, visual, venue, studio and worship technology market. The Integrate Expo has aggressively targeted exhibitors from ENTECH and CEDIA and to a lesser degree SMPTE – also to be held in July.

All shows are vowing to be bigger and better at a time when importers and manufacturers are cutting costs. The trade show landscape appears very crowded, with CEDIA, SMPTE and INTEGRATE all running next July in Sydney, followed by AMAC (the Australian Music Association Convention) in August on the Gold Coast and then ENTECH in February 2010.

## ROSCO'S CHARITY GEL

Over the past few years Rosco has developed new Supergel colours in conjunction with leading lighting designers and donates the royalties from their sales to charities and foundations.

Rosco Supergel #361 Hemsley Blue, was created at the suggestion of Stan Miller, Chairman of Rosco Laboratories, in memory of Gilbert Hemsley noted Broadway, opera, and dance lighting designer who dedicated himself to the training of young theatre professionals.

For 23 years Gilbert Hemsley's spirit and legacy have lived on through the Hemsley Lighting Programs, a not-for-profit foundation that strives to bring students and professionals together in unique ways. Programs include internships, master classes and USITT seminars.

Gilbert Hemsley had an extraordinary sense of colour and was a particular fan of blues. Rosco Supergel #361, Hemsley Blue is a beautiful cold blue that won't turn muddy when dimmed. It is available from Rosco dealers in sheets and rolls.

## GOBOTECH- NEW PREMISES

Gobotech are Australia's own gobo manufacturer. They have now relocated to new premises in Southport on the Gold Coast.

The new premises are fitted out with a lot and clean rooms to allow them to expand their operations in the precision optical work they do.

The new premises has also allowed Gobotech to employ Adriana, a graphics designer who will allow them to develop their new stock image catalogue due for release in 2009.

Gobotech manufacture full colour, black and white and stainless steel gobos and have an extensive stock image collection available online.

[www.gobotech.com.au](http://www.gobotech.com.au)

The new phone number is:  
(07) 5531 44 77



Photographed from left to right are:  
Mark, Adriana, Meagan, Andrew and Joakim.

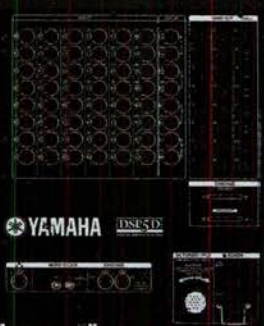


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[www.yamahamusic.com.au/products/commaudio](http://www.yamahamusic.com.au/products/commaudio)

# SMALL SYSTEMS LARGE BIRD

The owners of Small Systems Productions Aust (SSPA) have been in the professional audio visual industry for over 30 years. From its origins as a hire company for professional performers, Small Systems has grown into a diverse business. Their services now include installations, rentals, service and sales to a wide range of professional, commercial and domestic clients.

Small Systems PA Hire had their DVA system find a home in a Qantas hangar at Sydney Airport for two monumental events in September. The first was the home-coming ceremony for the Australian Olympic Team and the other the delivery of Qantas's first Airbus A380, the largest airliner in the world.

'I found the system worked perfectly in that environment', says Chris Clough, Small Systems' Managing Director.

Using sixteen DVA T4 cabinets as well as two S20 subwoofers with the DRL system lifters, Small Systems managed to get the result they were after. According to Chris, 'The coverage we got from the system was great. The vocals were nice and clear'.

With Channel 7's Sunrise Show and the Today Show both broadcasting from



the hangar, the media splitter was quite complex. Small Systems had to provide 36 separate media feeds to accommodate everyone on top of their standard left and right. 'Everyone was very happy the whole gig went off with out a hitch', says Chris.

Small Systems started to build their DVA system earlier this year and have plans of expanding to a full 32 T4 system which will give them 16 elements a side, plus a bunch of S20 subwoofers.

[www.sspa.com.au](http://www.sspa.com.au)



## Norwest Productions

### EX-HIRE PRO AUDIO EQUIPMENT FOR SALE

Following the successful acquisitions by Norwest Productions Pty Limited of Oceania Audio and McLean Audio Services we have conducted a review of all our hire inventory spread over our offices in Australia, New Zealand and China. As a result we have identified inventory surplus to our current needs which we are offering for sale via our website.

Included are items from:

- EAW
- Digico
- Schoeps
- Optocore
- Quest
- Yamaha
- Dolby Lake
- Klark Teknik
- TC Electronics
- Lexicon

Follow the link below for full details. We expect to be adding to the list as we assess further the requirements of the group so I encourage you to keep watching if you are interested.

[http://www.norwestproductions.com/exhire\\_for\\_sale.html](http://www.norwestproductions.com/exhire_for_sale.html)

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## CHAMSYS RISING

The world of high end lighting consoles is having a shakeup with the rise of Southampton (UK) manufacturer ChamSys. CX recently had a briefing from co-founder Chris Kennedy who started the firm with George McDuff in 2002.

With considerable lighting experience they wanted to build a lighting control desk that had at least the functionality of an Avolites Pearl console but at a much lower price. The upshot is the MagicQ range which sells between 28k and 56k for the Xpert console.

ChamSys say their consoles have similar functionality to Hog 3 or Vista consoles, and that they currently have a 100 console backorder book.

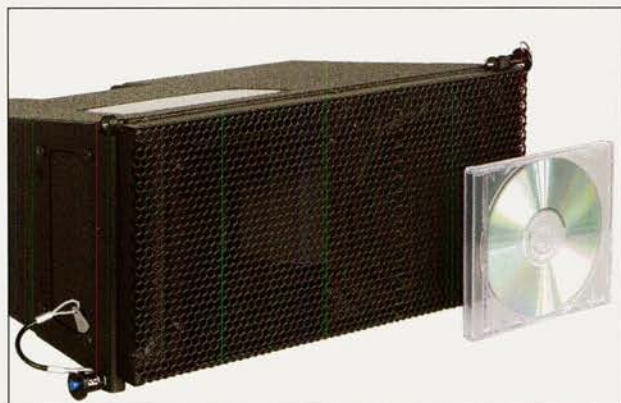
In Australia Lighthouse Distribution, the lighting arm of Hills SVL, represent ChamSys.

[www.chamsys.co.uk](http://www.chamsys.co.uk)

> See Review, this issue.



Andrew Winslade has joined Lighthouse Distribution as National Sales and Marketing Manager. He was previously in senior lighting sales at Australia's most profitable lighting importer, Show Technology.



## ALCONS INTRODUCES LR7

Alcons have released a Micro pro-ribbon line-array with what they claim is the industry's best "throw-to-size" ratio.

The new LR7 micro line-array weighs 8kg and measures 1.5 CD's high and 3 CD's wide. This is an interesting new measurement system.

The LR7 is a passive 2-way line-source loudspeaker system. It is a true line-array system, to be used as vertical array, either in stacked or flown configuration, for both portable and permanent installations.

The frequency response of 74Hz (-3dB) to beyond 20kHz enables a full-range deployment without the immediate necessity of additional bass systems. In applications where extended bass response is required, the LR7 can be combined with a pressure-bass or deep-sub system.

Loaded with the RBN401 pro-ribbon driver on a "Morpher" lens the system features a 90° or 120° choice of dispersion, due to the ribbon's all-natural cylindrical (isophasic) wavefront.

[www.theribbonnetwork.net](http://www.theribbonnetwork.net)



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| <b>ART 312 A</b>  | 12" + 1" | 300W   | 50W    | 127dB   | 19kg          | 680H 405W 345D             |
| <b>ART 315 A</b>  | 15" + 1" | 300W   | 50W    | 128dB   | 20kg          | 680H 405W 345D             |
| <b>ART 322 A</b>  | 12" + 2" | 350W   | 50W    | 128dB   | 23kg          | 680H 405W 345D             |
| <b>ART 325 A</b>  | 15" + 2" | 350W   | 50W    | 129dB   | 24kg          | 680H 405W 345D             |
| <b>ART 522 A</b>  | 12" + 2" | 500W   | 250W   | 130dB   | <b>18kg</b>   | 680H 405W 345D <b>*NEW</b> |
| <b>ART 525 A</b>  | 15" + 2" | 500W   | 250W   | 131dB   | <b>18.5kg</b> | 680H 405W 345D <b>*NEW</b> |
| <b>ART 705 AS</b> | 15"      | 800W   | TBC    | 130dB   | 37kg          | 590H 435W 600D             |

*\*All power specifications measured in continuous RMS power.*

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**ARTSERIES** →



## READER FEEDBACK:

### Safety

A reader writes: I have recently acquired a casual job at a well known Australian venue, run by the government itself. A few days ago I was working in the ceiling and cut myself. No biggie, I thought, I'll just run back down to stage and grab a Bandaid. I get down to the stage to find out that no individual venue has a first aid kit, instead I am to visit the Nurse's room. Upon visiting the nurse's room I discover the door to be locked with no nurse on duty. I head back to the venue and ask again where I can get a Bandaid. I am told to go visit security.

Later I enquired with the OH&S officer to find out why there is not a first aid kit in each venue. 'It's too hard to maintain and keep stocked, besides we have the nurse and if they're not on duty you can visit security or dial extension 2 from your phone'.

Later that week I found a roaming first aid kit, I was impressed until I found that it was padlocked shut! Who padlocks a first aid kit?

### Herbs



Here it is - the Bose 802C Herb Garden! Totally portable, well presented & organised, Perfect! Coming soon... the U-Matic Letter Box, & the 8' Tripod screen CamperVan Roll-out Awning.

*Lester (Doc) Jurott*

### Lights

Might I offer a few observations on the contributions about lighting concerts? These are from my days as an electrician watching the masters light international stars on a weekly TV show from the Palladium Theatre in London - then "the world's greatest variety theatre".

Today we see artists in black costumes appear in front of black sets and/or orchestra rostra. No wonder they're hard to see. Might I suggest that colour, pulse and the volume of light should be chosen to underscore the music - not just because it's a default offered by the manufacturer. It's not what you've got - it's what you do with it!



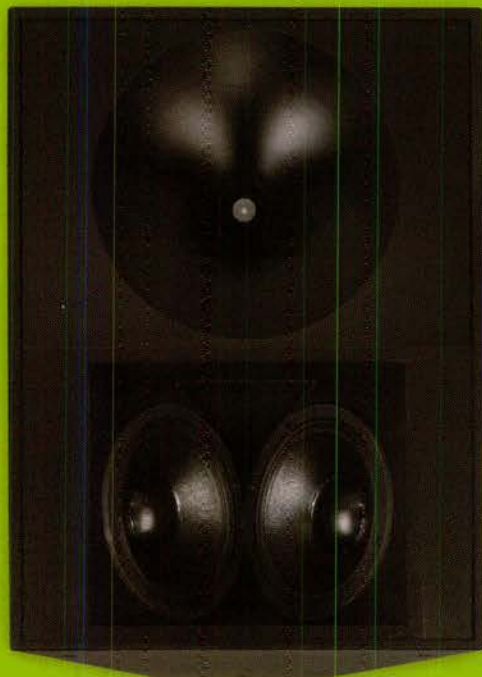
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## TOP GEAR USES NEW STRAND CONSOLE



Freehand Productions' Top Gear Australia put a new spin on this very popular BBC brand and they also put the latest in lighting control to work. Using two of the newset Strand Lighting Palette VL16 consoles, they were able to put the LD in the control room with a full console interface to trigger cues, as well as put another console out on the floor so that moving lights could be precisely placed - all at the same time.

Originally planned as a tracking backup system, the second console was almost immediately put to work as a "remote control" of the first giving the production team unprecedented control over their lighting systems. Despite the fact that the production crew were new to this control system, it took very little time to get up to speed with the easy to use interface.

Bytecraft Entertainment supplied the lighting systems, and all the support the production team needed to make the shooting of the TV show as smooth as possible

[www.bytecraftentertainment.com.au](http://www.bytecraftentertainment.com.au) 

## RIEDEL ACQUIRES ROCKNET

Riedel Communications, German manufacturer of pro communication systems for the broadcast, theatre and event industries, has acquired digital audio specialist Media Numerics. Media Numerics has developed the real time audio network RockNet. Amongst the first users of RockNet are prominent productions like Bruce Springsteen, Queen and the Grammy Awards.

"With RockNet we have a new product line, which really complements our existing portfolio. The acquisition also strengthens our development expertise in the field of professional audio products. We really look forward to the further development and success of RockNet", said Thomas Riedel, Managing Director of Riedel Communications GmbH & Co. KG.

[www.riedel.net](http://www.riedel.net)



## ROCK N' ROLL - NEW M1 LIVE MIC

The new RØDE M1 is built for late nights, crowded stages and long tours. With a rock solid die-cast body and sturdy dynamic capsule it can take all the abuse you can throw at it, without showing signs of age or neglect.

The M1 is the only dynamic performance microphone on the market with a lifetime warranty.

"RØDE have so much confidence in the M1's rock credentials that we are prepared to back it with a lifetime warranty" commented Damien Wilson, Sales & Marketing Director at RØDE Microphones. "So you can be sure that in choosing the RØDE M1 you are investing in a microphone that not only looks and sounds rock n roll, but will be a part of your kit for a long time to come."

[www.rodemic.com/m1](http://www.rodemic.com/m1)



## EV DEBUT PL SERIES

Inspired by the PL legacy that began in the 1970's, the new 2008 PL Series represents EV's commitment to bringing a comprehensive family of seven vocal models and three instrument microphones to the professional live sound community.

The entry-level dynamic supercardioid PL24 offers all around vocal clarity in any live sound application. The PL44 is a dynamic supercardioid voice-contoured for transparency and high-mid lift. The dynamic supercardioid PL80a is robust and EQ-friendly, delivering up-front vocal placement while the PL80c maintains all of the sonic characteristics of the PL80a, with the added cosmetic detail of the "Classic" PL finish reminiscent of the legacy PL80 from years ago. Finally the condenser cardioid PL84 is carefully voiced for intimate detail and presence.

The dynamic supercardioid PL33 kick drum and low frequency instrument microphone delivers tight low-end and punctuation. Putting a new angle on drum mic'ing, the dynamic supercardioid PL35 is designed and voiced for tom and snare mic'ing, with a unique physical design that eliminates the need for right-angle XLR connectors, minimizing cable clutter over the drum. Rounding-out the instrument line-up, the PL37 small diaphragm condenser cardioid overhead, cymbal and instrument microphone crisply captures all of the performance detail of overhead drums, percussion, and acoustic instruments.

[www.electrovoice.com](http://www.electrovoice.com)



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### The time to go digital is now...

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If you've been delaying a move to digital because of interface or operational issues, the wait is over. The Yamaha M7CL Digital Mixing Console offers professional digital console performance and features for live sound in a 32- or 48-channel system that can actually be easier to use than a conventional analogue console. It sounds great, too.



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# PINK GIVES BACK

*After selling out 37 barns last year downunder and headed to do the same next year, the hottest name in pop returns for a promo tour. CX caught a gig and saw how good management supports a hard working star. Surprises await...By JULIUS GRAFTON*

Pic by BOB KING

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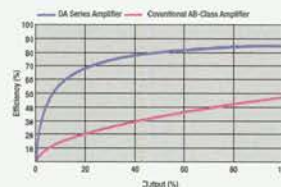


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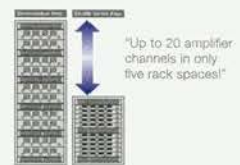
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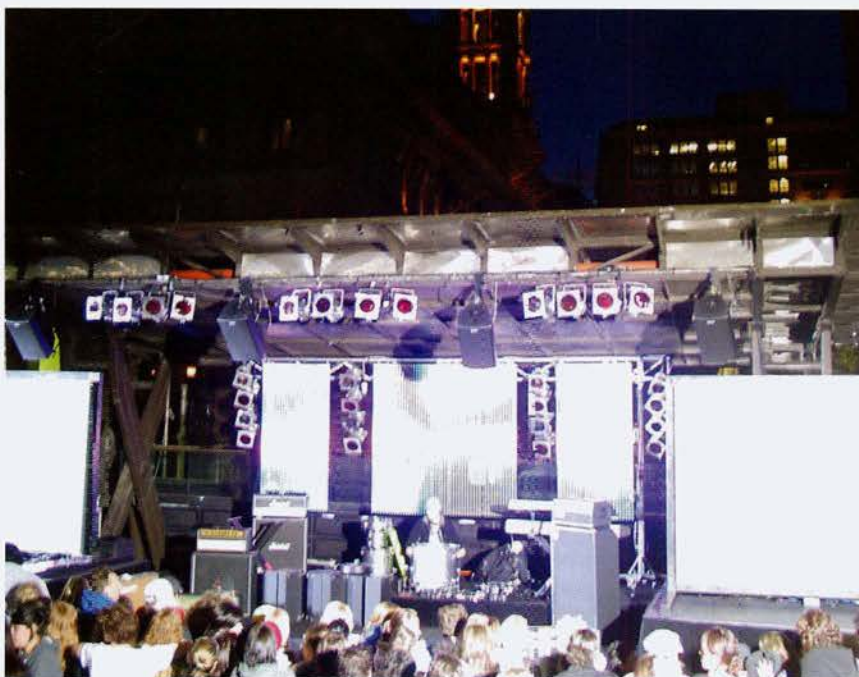
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Sunrise hasn't happened yet, it's dark and unseasonably cold. But the crew are advanced with preparations for a live to air gig, featuring the phenomenon that is Pink with full band. Sunrise the TV show has a solid entertainment foundation, and to the enormous credit of the 7 network, they pay to get 2 live songs on air most mornings.

I'm in Sydney's Martin Place at 0500 and there are already a hundred Pink fans, some who slept here. The Bytcraft Lighthouse LED wall fires up with crowd shots, as the sound crew untarp a small PA. Noise limits mean that normal concert conventions are out the window – the acts want to be on the number one national morning show, so they do what it takes.

"Some of the crews freak out", says Sunrise live sound guy Ivan Ordenes. "One engineer from the USA rolled up, took a look at 6am, and said it was all crap and they would pull the gig. He got on the phone to management, then went all quiet and worked the gig. Later they came up and apologized."

Gearhouse do the outside broadcast, OB supervisor Jason Hamiester was up at 02.30 and as soon as this one is done at 9am, he high-tails to catch an 11am flight to Townsville



Crowds gathered at the crack of dawn.



Gearhouse OB truck.

– to do a football OB.

Last night at 7pm the trucks arrived with all the gear – the crew finished at 11pm. Gearhouse arrived at 3am, then the audio crew at 4.30am. Pink's local production manager Gary Brokenshire arrived with the crew and a pantech loaded with stage gear.

Bytecraft had forty or fifty chrome Par 64's rigged which provided some colour to smooth out the TV lights. Due to those noise laws we mentioned before, the PA was mainly directed down from the stage roof into the sunken audience area at the plaza. One small stack each side sent sound out further. The flown

boxes were four EAW JFX 260's, then one JFX 260 sat either side of stage on two JBL M series powered subwoofers.

### HERE'S PINK

Pink is a pop superstar who is possibly the hottest ticket on the planet. She came to Australia in 2007 for a few shows, and ended up crossing the country four times for a total of 37 gigs. No one's had that kind of tour since Dire Straits somehow struck a chord in the early 1980's.

So here is the hot act, at 7am in the morning, looking refreshed and keen for a TV live gig. The band have arrived in a limo-van, and done a bank check on

the permanent, fold out stage. The crowd are being finessed by warm up man John Deeks, who interviews a six year old boy on stage and gets a cheer going for the live crosses.

Network 7's studio is two blocks up the plaza, so all the action down here is an outside broadcast which goes to a fibre optic link. Up in the studio, the Sunrise team regularly cross to the stage as the first song segment approaches.

The limo backs up to the rear of the stage – Pink, her bodyguard, and uber manager Roger Davies climb out. She acknowledges the crowd. Davina Spencer was there at 4am, and gets her pink fluffy autograph book signed straight away. She is speechless. "I can't believe how easy that was", she yells at me, before dissolving into tears.

Pink makes her way down the steps to the little dressing room under the stage, which has had some Persian rugs and flowers rushed in by the Sunrise team to cheer up the dreary space. Catering and positive vibes are the order of the morning as the chill lifts slightly with morning sun streaming almost horizontally down the plaza.

The first song is at 7.50am, live to air, and a run through happens at 7.35. The crowd goes off. Then the song is done for TV, followed by an onstage interview with Melissa Doyle – the co-anchor of Sunrise.

Then there is a long autograph session, which Pink really doesn't need to do at all. You can figure out whether a star is a nice person by the way they interact with their public. Instead of doing this, I ask Garry Brokenshire. "Mate, she is great and the band are too. They're all lovely people". He wouldn't say it if untrue.

### THE MANAGER

Standing next to Pink is a tall handsome guy with blue eyes who is one of the hottest music managers on the planet. Roger Davies also manages Cher, Tina Turner and Joe Cocker. He once managed Janet Jackson and Olivia Newton John.

He is Australian, based in L.A. and has eyes and ears sharply tuned, along with a relaxed professionalism that others can't imitate.

The accolades he gets are well earned – he started off as a roadie for a Sydney band called Company Caine. He looked more like a rock star than they ever could, and soon he was managing Sherbet, who needed help. They got a manager with an ear for a hit song, and went on to be the most successful band of the 1970's.

A push into America didn't work, but

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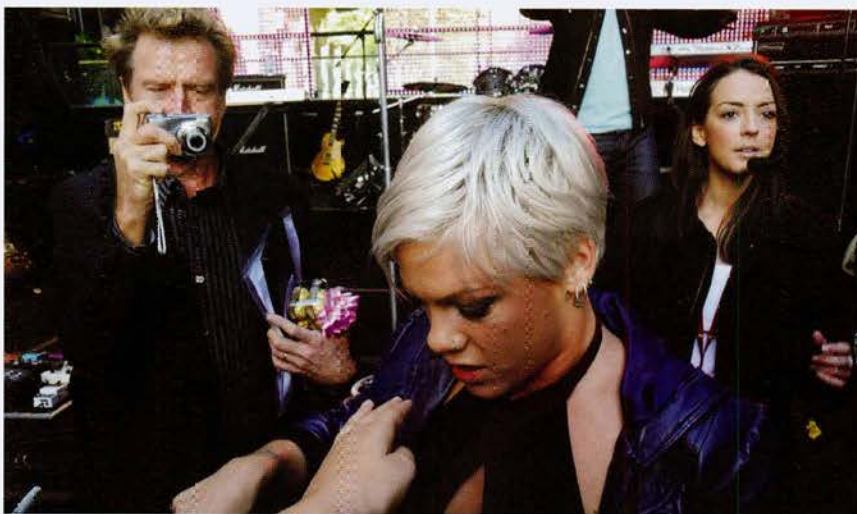


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*Pink's Manager, Roger Davies takes a pic for fan. Pic by Eob King.*

Roger Davies made contacts that then bore fruit for the career of Olivia Newton John, who went on to be the most successful female recording artist of the late 1970s.

Almost every act Roger Davies has handled has gone multi platinum, with a few exceptions. Sade was one. But he has a well deserved reputation, and through all his hard work is without peer as the single most successful Australian in the music industry. He is probably personally worth around \$100 million.

When you feel stress, unhappiness or get treated poorly it all usually comes

down from the top. When you go backstage for any of Roger Davies' acts, life is relaxed, professional and pleasant. Forgive my enthusiasm; I am in awe of his leadership.

### A PROBLEM REARS

Pink heads under the stage for a quick break, and redoes the gauntlet signing autographs all the way back for the second segment, due to air at 8.50am. A runthrough is required, and on cue Ivan hits the play button on the click track which then freezes.

"I knew this was a bad idea", a Pink

crew member says, as a cluster of heads turn to gawp at Ivan since nothing is happening on stage. The clock is winding down, the runthrough is almost essential to get camera switching and angles right. The band need to sort out stage monitor levels.

The click track arrived on a CD when there was no CD player in the rig. The only logical course of action was to insert the CD into Ivan's Mac and when you do that, the Mac treats CD audio files as an i-Tune. There is no plan B. The Mac next to the sound desk is rebooted. Everyone is headed side stage to the sound desk. Ivan is not flustered. He tells them what he is doing, and how he is doing it.

There is a painful wait of around two minutes to reboot the Mac, reload i-Tunes, and to hit the play button. There is just enough time to run the song once before it goes live to air.

Finally the song is run and then the live version goes up and out across the nation. Ivan is still nonplussed. That's what being a professional sound engineer is all about.

The moral of the story is obvious – a second playback device is almost always mandatory. As it turns out, the keyboard tech had his Mac powerbook open and ready within thirty seconds, so Plan B was already underway when Ivar's Mac lit up again.



*Pink's Production Manager Richard Young.*



*Aaron and Gary Brokenshire. Aaron handles backline.*



*Jason Hameister, OB supervisor for Gearhouse.*



*Guitar tech Tony Hanuman from the Gold Coast. Hired by Pink on the last Aussie tour, been there ever since.*



*John Deeks and Ivan Ordenes.*



*Richard Horwath and Magnus Olander from Bytecraft.*



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Flavia Fayet and Rachel Lees music producer.



The click track dies prior to the runthrough...what the? Ivan Crdenes stays cool under pressure.



iTunes is determined to be the culprit. A reboot is in order to re-tify the problem (hopefully).



Mission accomplished, a cool professional will win out every time!.

## THE SOUND

Ivan is mixing from side of stage, for the audience and monitors. It's an oddity of showbiz that international acts who normally demand stadium sized production will compromise for TV. That's the power of a show like Sunrise.

The mix is on a 16 channel LS9 Yamaha desk – three pairs of in-ears, two pairs of Jands AM 12 wedges, and the main left/right outputs going to the EAW PA. It's all a compromise at the plaza, but it serves the audience perfectly well. They aren't running around demanding more PA!

But live to air it's a different story. The act trusts the network to mix the show, and doing that is Randy Franz who is located in the small Gearhouse OB truck on the other side of the stage. He has a Yamaha 01V desk, with a full suite of Shure microphones across the entire band.

Sunrise normally use Audio Technica microphones but the Pink corporation have a deal with Shure. So Shure it was.

Reviewing the tapes later, of course the sound sounded terrific. That's what the Randy and Ivan partnership delivers for Sunrise.

They are so in the groove with the live band thing that they sometimes do two per day. It's a fulltime job for them both nowadays, since the 7 network added a morning show after Sunrise. So when Sunrise sets (pun) at 9am, the morning show rises (groan! – ed).

Just the other week, Ivan and Randy did Pussycat Dolls (American girl group) in the same outdoor manner as Pink. When done at 9am they then packed the foldback system and wheeled it up Martin Place across two sets of traffic lights to the studio.

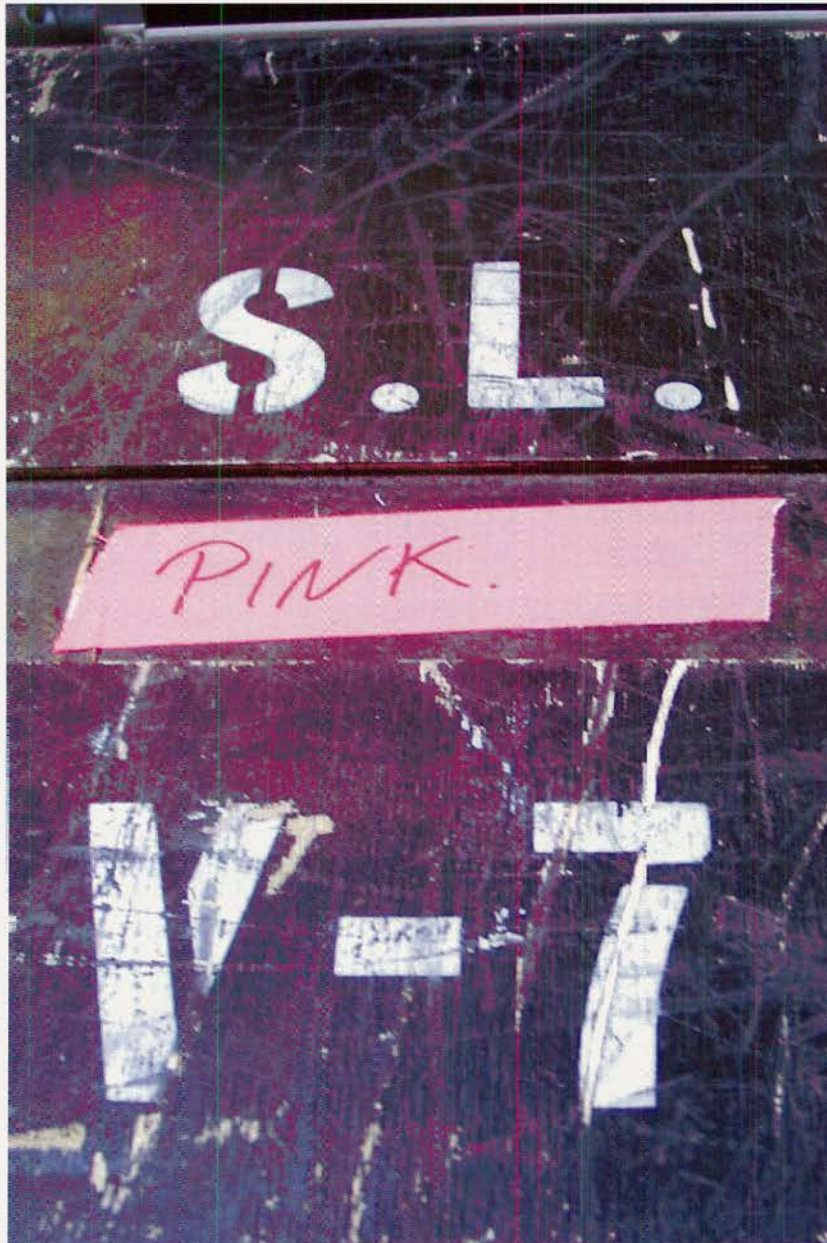
At 9.50am they had Bryan Mcfadden live on stage in the studio – soundchecked beforehand. That has to be some kind of record.

## BACK TO NEW YORK

The band flew out that day after the brief promo tour which started with the two day ARIA awards commitment. A surprise live gig at Sydney's Metro, and an appearance on Australian Idol were sandwiched in.

The band was made up of two keyboards, guitar, bass, drums and two backup singers. Six crew came out, along with Pink's security minder and The Roger. The promo tour kicked off sales for the Funhouse show tour, to run in May and June.

After Australia, the entourage did TV shows in New York. CX



## THE BACKING TRACK STOPS...

The minor technical inconvenience of an i-Tunes reboot for the runthrough (see story) would have been so much worse if it were for the live to air segment which followed a few minutes later.

All crew can recite stories of failures, when the failure is before a show it's a wakeup call. Recently we reprised a History item where the failure of the sole Mini Disk player killed an entire theatre performance before it started. That costs money.

A mid show failure adds enormous stress on the performers and the crew. There really is no excuse if audio don't have a second player of the same kind, connected and ready to roll.

All technical components have a failure rate. If you have one CD for a backing track, make an i-Tunes version and have that loaded on an i-Pod or Mac that is connected and ready to roll. Get the levels in FOH and monitors sorted for the backup, to avoid blowing the performer's hearing.

Some lighting consoles have a hot tracking function for a second console, which is shooting simultaneous cues and ready to assume control. Audio and video needs the same diligence.

In my touring days, the FOH and the stage monitor consoles were interconnected so either could assume the role of the other if one failed or if the multicore was cut. One did indeed fail, and we were so ready that the act didn't even notice. If an amp, EQ or crossover failed, we had a plan B for those.

Like I said, there's NO excuse if you stop a show, and YOUR career WILL suffer because everyone will know.

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Glenn Richards Augie March



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# 龍

# CHINA INSIGHT

*Why China rules the entertainment tech world. And why people are freaked out by this. Julius Grafton visits the Pro Light + Sound trade fair in Shanghai to test the climate, find the shonks, and see where a lot of what we use is made...*



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**G**amechange. Two months ago I was in the financial capital of the world – New York. It looked and felt that way then. Now I've visited Shanghai, the financial capital of Asia and, soon, the world. This was across the great fiscal reckoning window of 2008. When our world changed. Perchance I was there.

Shanghai got the changeover gong because of the new reality in manufacturing. China has arrived and for the sound – lighting – vision business, it's very much business that will be the next usual. Those sweatshops are disappearing – the Chinese factory owners pay A\$350 monthly now. That's good bucks there.

At Pro Light + Sound China tradeshow, I saw 300 competing exhibitors working very hard to sell their sometimes incomprehensibly named products. I would be met or accosted in the aisles by a young guy or girl with a brochure. But these are sound – lights – video often from the same gene pool as the brands we use here in Australia.

In the Sennheiser tent was a mix demo, when I walked in it sounded tight and the band were in the pocket. The riffs and sounds were very familiar but the vocal wasn't. It was a Shanghai rock band – and they had their own groove. It was as it should be.

The Chinese can do the gig. If we think they can't, then we are the losers.

**Case in point:** a Johnnie Walker Whisky promotional show for 500 people, with bands/stars/videos and a sitdown meal. Riverside in Shanghai on Saturday night I witnessed a 60 x 40 stage with full LED cyc, line array, 80 movers and 4 followspot towers fed by five generator trucks. All local crew, and even with harnesses as they climbed the transparent stage roof. It was a professional business theatre production without a westerner in sight.

There's nothing particularly magic about what we do on shows.

## NEW RULES

The Chinese manufacturers have been original equipment manufacturers (OEM) for our industry for more than a decade. A lot of what we buy is made third party by a Chinese or Taiwanese OEM. Taiwan is China – the mainland has been plotting quietly for decades to reclaim it. They will, and the USA will not do anything about it.

Forget about communism and socialism. China (like Singapore) is a state controlled nation where the political leaders decide what is best for their people. Many expatriates I know come to like the security and the certainty of the system. Projects get built according to how urgent they are. You can tender a high rise, and get a price for fast, faster, or ultraquick construction. In the west, we just have a timeline and we have all our regulatory phases. We have lobby groups, environmental assessments, elected part time councillors, unions and a death wish to do the thing expensive.

Australia is a high cost, low volume business environment. It keeps our environment cleaner, whereas in China the haze and dust is everywhere. We trade off breakneck expansionism for snails pace regulation and procedures. Maybe there is a middle way?

Many wealthy Chinese move to Australia because



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### TRUSTING A NO NAME MOVING LIGHT

The ocean of strangely named moving lights you meet at a Chinese tradeshow makes it hard to be confident in the manufacturer.

We did gain some preliminary confidence in the Ying Wei company ([www.ywlight.com](http://www.ywlight.com)), who are a top 6 maker of movers and LED products. To their credit they have an Australian office with stock and a nice guy who understands Australia, and the product appears OK.

We are very cautious about unknown lighting vendors, having had some battles over the years with sloppy importers who don't really care about your safety or your wallet.

Hopefully we can review a YW light sometime soon.




*This Biema console is vast, you need telescopic arms to reach across. When you do, you need to restrain yourself and try to feel good because you are operating a very ugly lump of hardware.*

they see a better future for their children, so we don't necessarily need to throw out what we have. Instead, we look to China as a trading partner and that's the essence of this story.

Our prejudices need alignment – Shanghai has clear streets and is safe. Shanghai is very modern, with 20 million people, equal to the population

of Australia. The high rises I visited and stayed in seemed very well built. The power grid is far more organised than what you see in the third world.

The Chinese are the longest continually established society on the planet, and the first traders. They work long term. Our planning cycles stop at ten years, they think lifetimes.



**“** *The CALM expo in Beijing (May 2009) is the main trade fair for our industry in China. The Shanghai Pro Light + Sound trade fair is more regional, so there were not many westerners on hand. Some who were disgraced themselves by chain chugging beer every day.*

*Come to think of it, there's two things about trade shows that I can observe.*

*One is that (western) people drink a lot of booze on the stands. The other is that if you let them, exhibitors will turn up the volume and quickly turn the place into a noisy hell. The Chinese managed to do this, for no apparent reason, since the onstand noise burst proves nothing and doesn't sell equipment. Australia outlawed the practice in 1994.*

*The Shanghai show was impossibly noisy which was bad for everyone there. The organisers need to lead the way and stop this.* **”**

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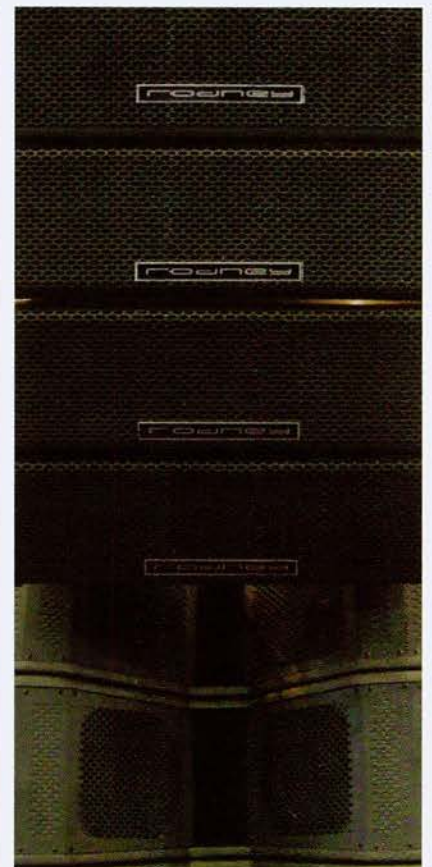
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Maglev. Mindblowing futuristic Magnetic Levitation train that runs to Shanghai airport. Top speed 581 kmh, best it would do for CX was just 370 kmh.



Hong Kong skyline at night.



Rodney line array. Strange to walk around a trade show and see all the weird brand names. A line array called Rodney? Why not...

I was asked the same question by several OEM chiefs I met at the trade show.

"What can we do to be better?"

My answer was the same each time. "Make a 240 volt not a 220 volt product, because our 240 volt grid is allowed to fluctuate plus or minus ten percent and a 220 volt device will cook at 264 volts. And get a western brand engineer involved closely to avoid replicating the things no one needs."

Through history mankind has always reverse engineered what our clever fellow man has made, to build it ourselves. No one approves of direct copying, and that message has finally filtered through to most OEM's.

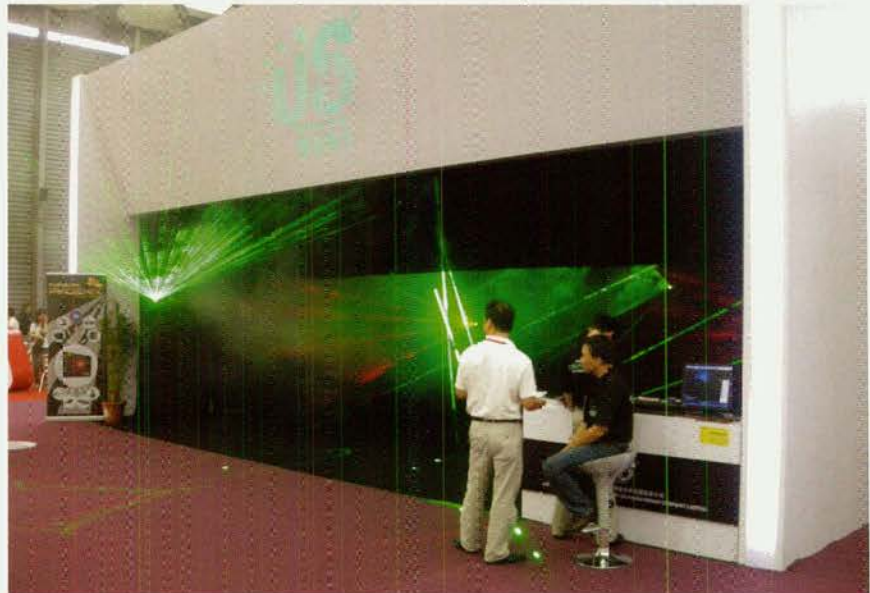
There have been some truly dreadful swindles done by shonky OEM's. One involved regular, not high temperature, wiring inside a par can, on sold to schools in Australia. Of course the thing fused and became lethal in use. At that time, CX was threatened with legal action by the Australian distributor when we publicised

Right now there are six major lighting OEM's and around ten major audio in China. Most of them are just making what we order - our distributors go there and request a product that does similar to the market leader.

The cycle now is turning as costs rise in China, OEM's are maturing, and customers are seeking reputable support from the distributors. Hopefully soon some Chinese brands will emerge in their own right rather than wearing someone else's badge, and we will see the emergence of some real competition in the middle market, where professionals specify products knowing they are good for five or even ten years working life.



*Missile. There's Missile. A speaker called a Missile. Why?*



*Mad lasers. No rules about lasers in your eyes over in China*

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Macau City at night.

The island state one hour by fast boat from Hong Kong is where almost the most building work anywhere is done. At sunset the cranes stop swinging, but flashes from hot work can be seen all night from the darkened skyscrapers. They build fast out there.

It's a casino frenzy fuelled by the mainland, which is the Peoples Republic of China, or PRC to make it easier. It

got back the Portuguese island a little after it got given the English territory of Hong Kong. What happened was that the PRC set out some rules, and the end play was they got these autonomous states. They usually win, those guys.

With Macau, the gambling thing was already flush – so the deep thinkers in the PRC decided to just keep it like it was, but let the people go there and

gamble since there was no legal gambling the mainland. But a while later, they weighed the chalice – the gambling licenses had been sold, for numbers that hit the T, to a bunch of western proprietors and a few Chinese as well.

But all the money coming over was finding its way out of the PRC. Macau itself has a GDP per person almost the same as Australia, albeit with just 500,000 people. And more than half of their wealth comes from gambling.

This is a now thing, a short while back the politburo, or whatever the deciders call themselves in Beijing, chose to cap the number of times their 1.6 billion souls could travel down to Macau. They set a four trip per year limit.

The place is figuratively crawling with those from the neighbourhood. My Laowai (foreigner) brothers stand out like the dog's proverbials.

Before this the concessions were ramped and the bosses descended. The Venetian is the current ruler of the crop, located on the Colacai Strip over the bay from the old town, which already has a rash of old and new casinos. The Venetian is the multi billion dollar endeavour of The Sands Group, who first built The Venetian in Vegas. The Macau edition is larger, with 3,000 hotel

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Eric Po'teven at LCS.

rooms that are all suites, and another cluster of hotels set to open soon.

The Sands plan to spend 12 billion US, and have 20,000 hotel rooms on the Cotai Strip within two years.

## VENETIAN ARIAS

The Vegas Venetian primed me up – I've stayed there. I knew there were canals and gondoliers who sing. I pay them not to. Those canals are contained within the shopping district, underneath and snaking around the first level of the small suburb that is The Venetian.

It has the largest gaming floor of any, it's said that during Chinese New Year more than a hundred thousand people went through the floor.

The Vegas based management have made a truly gargantuan commitment to this place. Example: a purpose made theatre for Cirque du Soleil. Rumoured theatre cost: \$180 million American dollars for the building, then countless more to get the permanent show up and running. It is scheduled to run forever, 8 times a week except when they stop to maintain the extensive works.

Backstage is a small city of Cirque stuff, a training stage, physio medical enclave, workshops for wood, metal, lighting and wardrobe, all the things that keep a razor sharp troupe of acrobatic Calista-formers flying and bounding.

Such is the precision of their art form, the stage manager calls the show from a bridge above the front of house. Lighting is on her right, automation just to the left. This is the nerve centre of the production, where flying trucks snake out from a garage set up high back under the bridge, where trucks are loaded and sent on rails over the audience.

## CIRQUE

In July 2008 Cirque Du Soleil opened Zaia in their purpose built 1,800 seat theatre within the Venetian. It is a new show of which Wikipedia says: "ZAIA presents a young girl's perception of the stars and planets, space and infinity, all populated by a panoply of fantastic, out-of-this-world creatures. The title, ZAIA, comes from a Greek name meaning "life" and is also reminiscent of Gaia, the living, self-aware, spirit of Earth."

Over 50 minutes without interval it mesmerizes with ethereal floating and flying characters and objects, along with spectacular trapeze and acrobatics. A band provide backing,



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*Cirque - Warren Donohoe, Eric Poiteven, Steve Dubuc, Dave Finch & Conrad Krieg.*



*Julian Souter & Michael Carrucan.*



*Dave Finch with XL8.*



### MACAU FACT SHEET

- Half million Macau-ians
- More casinos than anyone needs
- Portugese once, now PRC satellite
- Visa on arrival, no hassles
- Hour from HK on Ferry, \$40 one way
- 6% personal tax rate
- Just 3 pubs
- Apartment \$250 - \$350 per week

and two divas sing opera style in 'Cirquish' – indeed there is no language used so the show can work to an international audience of any age.

Overhead is an oval track with five moving chariots weighing around 400kg each. They transport set pieces and performers, the largest pieces weigh 600kg each.

The proscenium is almost circular, like an oculus (a round window, sometimes called a "bulls eye") made up of several layers that create a sense of depth through perspective lines and curves made of bronze that converge on the single focal point located at the centre of an enormous sun set against the backdrop, known as the "Star Drop," which recreates the night sky with 3,000 fiber optic "stars." Designer Guillaume Lord used a star map to give the Star Drop an accurate representation of the constellations at the exact location of the theatre.

When the audience enters the theatre, one of the main set elements, a gigantic Sphere, appears to be a chandelier and the walls are illuminated by light sources at ground level, creating the mysterious effect of a deep dark cavern. When the Sphere is revealed in all its constantly-changing glory following the opening number, its full scope and the effect of its trajectory over the heads of the audience is nothing less than stunning.

The two tonne, 25' diameter sphere

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## TECHNICAL INVENTORY

The Venetian needs to be relatively self sufficient, since there is no equipment for hire in Macau. Julian Souter explains their purchase choices were aimed at meeting most requirements.

Cantopop shows and major touring acts like The Police and Celine Dion come through the Arena, and generally don't tour their production. A typical rock tour like Linkin Park will start in Japan and wind through China and then Macau on the way to Australia.

Venetian is a Meyer Sound and Martin Mac venue, with Meyer Milo and Melodie line array elements plus subwoofers in abundance. "A lot of people will accept MILO – it's like having Mercedes Benz – people who like Porsche will drive Mercedes", Julian says.

The lighting collection includes Martin 2000 and 700 profiles and washes driven by Grand MA. Venetian is up to 32 universes of DMX. There's the usual mess of profiles, pars, Source 4's, blinders, and a couple of hundred metres of truss.

Audio consoles are mainly Yamaha, with every digital model available from PM1D downwards. They have 32 little LS9 consoles, for example. They have some Egidesign Venue as well. Funny one: at 2.30am I am in a bar doing beer with crew and watching a ten piece South American cover band from Australia. The sound guy is mixing on his laptop at the bar using Yamaha Studio Manager software!

When Venetian needs video, it sends out. The place is configured for NBA matches, and wired for fibre and Cat 6

everywhere. If a tech needs to get signal in or out of a given place, they call the I.T. dept and ask for position X. It means cables don't get run everywhere.

Another new venue bonus: the power for lighting in the arena is all up in the grid, so you don't need to drop hangs of looms. A not so bonus fact: the engineering of the arena roof isn't fully signed off, so there are low load limits per point, requiring a lot of probably unnecessary bridles until the roof is properly surveyed.

Julian Souter says he needs fifty new techs in January, and is not confident he will source all of them. A lot of Australians work up there, attracted by the low tax rate, the US \$ wages and the low cost lifestyle.

## CIRQUE AUDIO

Once again, the theatre at Venetian is loaded with Meyer Sound loudspeakers, and in the case of this Cirque show there are rather a lot of them. The audio system has around 76 sends – that means 76 outputs. These go to 116 Meyer loudspeakers which are pretty well everywhere.

This is mixed from a Meyer / LCS Matrix3 audio show control system, sending vocal, orchestral and sound effects to some or all of the outputs in varying amounts. This sound design is complex, subtle yet powerful – the show envelopes the listener with complex but pleasing sounds that perfectly complement the scene, cue, and mood. Sound design at Zaia is by Steve Dubuc.

Additional to the mixing matrix and show audio design is a Meyer

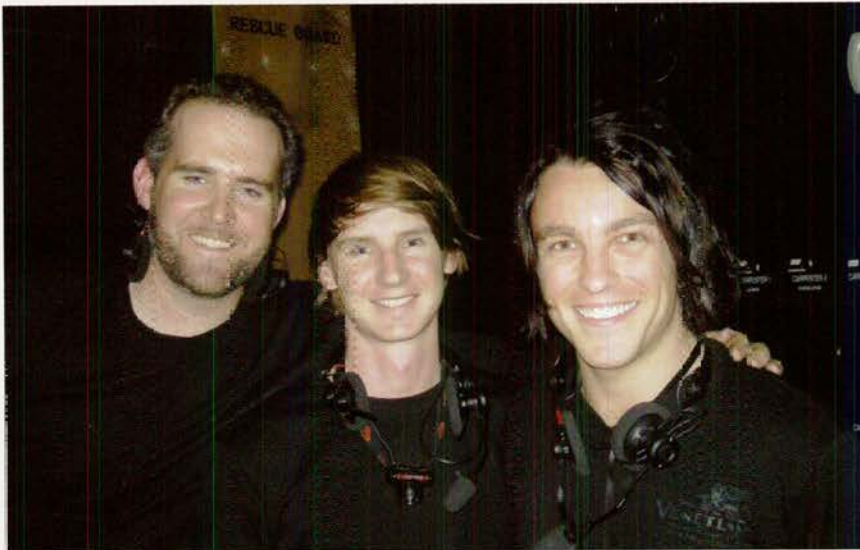
LCS Constellation system which uses microphones through the venue to feed a processor which then converts the room acoustic by feeding signals selectively back through multiple loudspeakers. This allows a given room, venue or space to have its acoustical environment changed at the press of a button. For a designer, it allows a dead space or a reverberant space be artificially created. Previously it required a complete build to make a space acoustic.

120 inputs come from the stage, and the two soundproof band rooms which are located up high and in front of either side of the proscenium. One band room has loud stuff in there like drums and perc, the other has strings and woodwind.

Sitting right behind one band room is monitor engineer Dave Finch. He has a Midas XL8 system to work on, which is the largest and most sophisticated digital live audio console available today. His work is sent to in-ear monitors and comms outlets around the backstage area. If for some reason there is a problem at front of house, he also has four mixes sending out there, which would route via a Yamaha DM2000 to the house PA should it be required.

So why a Midas XL8? Dave says it wasn't strictly due to the complexity of the monitoring but rather so the show design could utilise the Midas preamps, where each input runs through the XL8 system and on to the LCS front of house system.

Comms is a massive technology at this theatre, with around 40 stage crew on a variety of loops that all hub out from the stage manager, Terri Baker. The comms system is by Riedel.



Mick Littlewood, Hayden Clarke & Roy Cressey.



Ed Sanderson arena manager, The Venetian.

houses six projectors that beam images onto its six segments through a FL 360 degrees. The individual projections take into account the curvature of the sphere and are stitched together seamlessly to give the appearance of a series of single images. This sculptural mosaic transforms into a lantern, a hot air balloon, the earth and the moon, depending on the requirements of the show.

## THE VENUES

Venetian has a technical team numbering more than one hundred, led by Englishman Julian Souter who is the Technical Manager. He was recruited from Disney, where he'd spent some years. Before then he was technical manager at large around the world, and a specialist in stage automation.

Julian's world currently contains one

million square feet of exhibition and convention space. You read that correctly. It breaks into an exhibition area of 75,000 square metres – almost three times as large as Sydney's Darling Harbour halls plus 25,000 square metres of ballroom space.

If that isn't scale enough then step right and visit his 15,000 seat arena where acts like Police and Celine Dion perform. The Arena is managed by Ed Sanderson, formerly of Canberra. Another Australian, Michael Carrucan, is the production manager.

Given a new venue to commission, they came up against some unique challenges. One of them is the weather – which alternates between extremely wet and hot. So almost every audience member arrives with an umbrella. The first time they had 7,000 umbrellas at the

cloakroom was a day to remember.

Out in the casino are bars and clubs, so the audio visual dept is kept busy around the clock serving up all things to all people. There's around 100 technicians on roster.

With no tangible safety code or culture in Macau, the Venetian technical dept is working to the NSW safety code.

## THE FUTURE

While The Venetian is the largest building of its kind, with the largest gaming floor in the world, this is just the start in Macau. City of Dreams is fast approaching launch opposite The Venetian. This complex will boast facilities to rival the Venetian such as an underwater theatre and a Hard Rock Cafe, and it is just one of several similar mega complexes under construction. **CX**

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# PROFILE: TERRI BAKER



*Terri Baker is the General Stage Manager, Cirque du Soleil, Macau!*

CIRQUE DU SOLEIL



#### **Briefly, please detail your career to date.**

I am from the UK, I have worked as a Stage Manager in theatre for the last 20 years, and I have gained experience in repertory theatre, London's West End and on national and International tours. I have worked on such productions as Les Miserable, Saturday Night Fever, Fame, Sweeney Todd, High School Musical and Miss Saigon and I am now thrilled to be part of a new Cirque du Soleil creation.

#### **Qualifications? Learning?**

I trained at Mountview Theatre School in London where I gained a degree in Stage Management, technical theatre and design.

#### **How did you get the job in Macau?**

I submitted my CV via Cirque du Soleil web site, my profile matched the General Stage Manager position for ZAIA, the company's resident show in Macau, I was contacted by telephone, a conference call was set up, I traveled to Canada for a final interview and here I am in Macau!

#### **Challenges!**

Every show a new challenge presents itself! From automation stops and artist rescues to, unfortunately, artist injuries, one day is never the same as the next.

#### **How many cues for ZAIA?**

The last Automation cue called in the show is 62C.

#### **How often does a cue need to be skipped/missed, and why?**

We try not to skip or miss a cue but rather adapt a cue and send it later. Of course there have been moments when it's impossible and the knock on effect would be too big so a cue is cut.

#### **Do you 'think' in three dimensional space?**

During ZAIA artists travel over the audience, when I look out of my Control Room booth and look out onto a "Star Drop" that is 12,221 sq. ft. measures 121' x 101' and I watch an astronaut going by or a sphere pass in front of me that is 25' in diameter and moves on three axes, consists of an aluminum exoskeleton covered in Lexan and weighs 4,000 lbs, contains six projectors that beam integrated images through a full 360 degrees... I often feel like I am in space!

#### **What are the attributes needed for your job?**

Organizational skills, patience, communication and to be calm in a crisis!

#### **How do you stay calm when things go wrong?**

Adrenalin keeps you focused.

#### **What is the best thing about ZAIA?**

Entering the world of Cirque du Soleil! The organization is huge and you work with such diverse people.

**Where do you live, what is it like?**

I live in Taipa, the central island in Macau. I have a great three-bedroom apartment with amazing views over the river and the Macau Tower.

**Do you have a family – how do you balance work/family?**

It's a constant battle that I live with! My family is in the UK and France and my partner tours on another Cirque du Soleil show. Fortunately they are all great travelers so those air miles keep building up!!

**How many hours do you work/schedule?**

Because this production is new we have just gone through a 'Creation Period' of five months where the hours were extremely long, I have worked an 80hr week during Creation but now I average 50hrs. We are just starting to settle into a routine. Monday is our day off, Tuesday is a show call with no training, Wednesday through Saturday the artists train and have shows. Sunday is a show call day. We can perform between 8 and 10 shows in any given week.

**How 'technical' are you, and which tech skill is your strongest?**

Over the years of working on various productions I have gained enough technical knowledge to help me as a Stage Manager but my technical knowledge has grown immensely since joining Cirque, six months ago I never knew what a swivel harness was!

**What kind of 'what if' or emergency plans do you have?**

The show is still in its infancy so you do think very quickly on your feet! Having said that, we obviously have extremely high safety standards and every cue has gone through a stringent validation process.

**Which is the 'worst case' emergency you've planned for?**

This production is extremely technical with extreme acrobatics, we have many moments in the show where artists enter from the grid or are being flown over the audience, and we have rescue scenarios in place for every scene. I would not like to pick one particular moment but I have just been editing a document for "Fault on CS lift during Fire Dance". We have a fire act and at the end of the number the Principle artist with 2 flaming swords and 14 artists with double poi, that's a total of 30 props on fire, travel on a lift

for 30 seconds to a basement. We have to have a plan if the lift goes into a fault at any time during their travel.

**Where will you be in 5 years from now?**

Unless that lucky lotto ticket turns up, I would still like to be involved in live entertainment.


**Challenges facing industry?**

Encouraging the next generation away from the television.

**Most favourite guru / leader / mentor, and why?**

My first response will always be my parents! If I were allowed a second response then it would be repertory theatre in the UK, it may be a strange answer but it was the foundation to my career. I was fortunate enough to work at one of the best - 'The Haymarket'. As many West End productions would originate at this theatre, it gave me the opportunity to work alongside great Directors and Designers, a multitude of famous artists and great Composers such as Stephen Sondheim.

**General rant/rave : say anything!**

Only problem is that my work takes me away from my family! 



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**NEUTRIK**

# TRUTH OR FICTION?



*“Falsehood is easy, truth so difficult.” — Mary Ann Evans (better known by the pen name George Eliot), author.*

BY RICHARD CADENA

When Al Gore was the vice president of the United States, he created the Hammer Award to recognize people in the U.S. government who helped eliminate inefficiency and waste. The award consisted of a \$6 hammer wrapped with a red, white, and blue ribbon, and mounted in a glass encased frame. Apparently the idea for the award came at least in part from the discovery that the U.S. Navy once paid \$436 for a single hammer.

Waste and inefficiency, it seems, is the hallmark of government. I've heard that the Australian government once paid \$2885 apiece for 36 leather chairs and over \$18,000 for the expert advice of chair consultants. Who's to argue with an expert in sitting on your buttocks?

I'm all for cutting government waste, but it requires caution when it comes to tushes and tools. You've got to have the right tools for the job, and perhaps the right tool for the tush.

Take, for example, a voltmeter. You can pick up a digital multimeter at Jaycar for as little as \$14.95 or you can get an autoranging one for as little as \$19.95. On the other hand, you can spend as much as \$645 for a Fluke 83-5 or \$959 for a Fluke 289 digital multimeter. Of course, there is a world of difference between these meters, but one of the most important differences is how they measure AC voltage. The cheaper meters in this example are voltage averaging, RMS calibrated meters, while the two more expensive ones are “true RMS” meters. In some instances the AC voltage they read will be the same but in others they will differ by as much as 40%. The reason for this difference has to do with the difference between the average voltage and the RMS voltage.

A single cycle of an AC waveform has a positive half and a negative half. In a pure sine wave they are mirror images of each other and the two halves average to zero. But that doesn't mean it transfers no power. Obviously, the average value of an AC voltage waveform over one cycle doesn't convey enough information.

A more useful way to convey the measure of AC voltage is to use the RMS value, which is the value of AC voltage that would transfer the same amount of power to a resistive load as a DC voltage. 240 VAC RMS, for example, would heat up a resistor just as much as 240 VDC. RMS is an acronym that stands for “root mean square,” or in the Queen's English, if you take an average of the square of the voltage, and then take the square root of the answer,

you have the RMS voltage. The reason we average the square of the voltage instead of the voltage is because the squaring operation gets rid of the negative values by inverting the negative half cycle and it creates a direct relationship between voltage and the power ( $P = V^2 \div R$ ).

The RMS voltage is different than the average voltage, even in a fully rectified sine wave where we flip the negative half cycle and made it positive. If you work out the numbers, you'll find a fixed relationship between the peak voltage, the RMS voltage, and the average voltage in a sine wave. The illustration shows these relationships;  $V_{RMS} = 0.707 \times V_{peak}$  and  $V_{ave} = 0.636 \times V_{peak}$ .

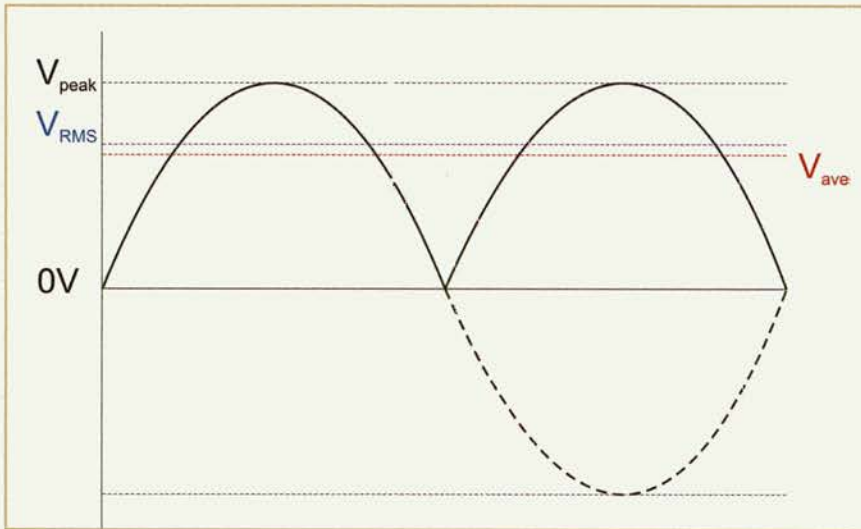
A true RMS voltmeter samples several points in a cycle and does a calculation before it spits out the reading. A voltage averaging, RMS calibrated voltmeter simply rectifies the waveform (flips the negative half cycle to make it positive) and averages the voltage over one cycle; then it uses a multiplier to scale it so that it will match the RMS value in a true sine wave. The multiplier is the ratio of the RMS value to the average value, which is 1.112 ( $0.707/0.636 = 1.112$ ).

In Australia, for example, the household AC is 339.5 volts peak; the RMS voltage is 240V and the average voltage of a fully rectified single cycle is 215.9V. If we took this average and multiplied by 1.112 then the result would be 240V. So far, so good... as long as the waveform we're measuring is a pure sine wave.

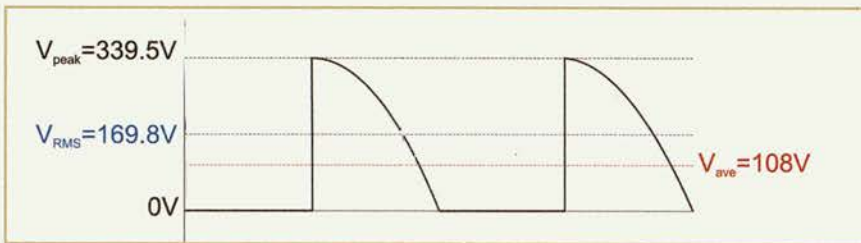
If the waveform is not a pure sine wave – if it has any distortion – then the multiplier will give an incorrect reading. Just how incorrect it is depends on how much the waveform differs from a pure sine wave.

Take, for example, a sine wave that has been run through a conventional forward-phase dimmer, the most common variety in the entertainment lighting industry. The graphic below shows the output of the dimmer at a level of about 50% (given a linear dimming curve).

If the peak is 339.5V, then the RMS



**Figure 1** - A sine wave with the negative half inverted showing the peak voltage ( $V_{peak}$ ), average voltage ( $V_{ave}$ ), and RMS voltage ( $V_{RMS}$ ).



**Figure 2** - The output of a dimmer at 50% intensity showing the peak voltage at 339.5V, the RMS voltage at 169.8V, and the average voltage at 108 volts.

voltage is 169.8V, and the average voltage is 108V. The multiplier in this case should be 1.57 ( $169.8/108 = 1.57$ ). But an averaging, RMS calibrated meter always uses a multiplier of 1.112, so using this meter will give you a reading of 120V instead of 169.8V. That's an error of 29.3%. The actual error could be even higher depending on the waveform.

We don't typically go around measuring dimmed voltage levels, but this illustrates how a distorted sine wave can lead to incorrect measurements using an averaging, RMS calibrated meter. And every time you dim a load, current flows through the neutral back to the feeder transformer in a distorted waveform. Also, switch-mode power supplies (a.k.a. "electronic power supplies") alter the waveform, leading to the possibility of inaccurate measurements of voltage and current. In fact, a non-sinusoidal waveform is probably much more common in our electrical systems than a pure sine wave, so it's very important to use a true RMS voltmeter and to understand why you spent more money for it.

The truth is that you can buy a true RMS voltmeter for as little as \$89, but please don't tell my wife.

*Know the truth, and the truth shall set ye free to e-mail the author at [rcadena@austin.rr.com](mailto:rcadena@austin.rr.com).*



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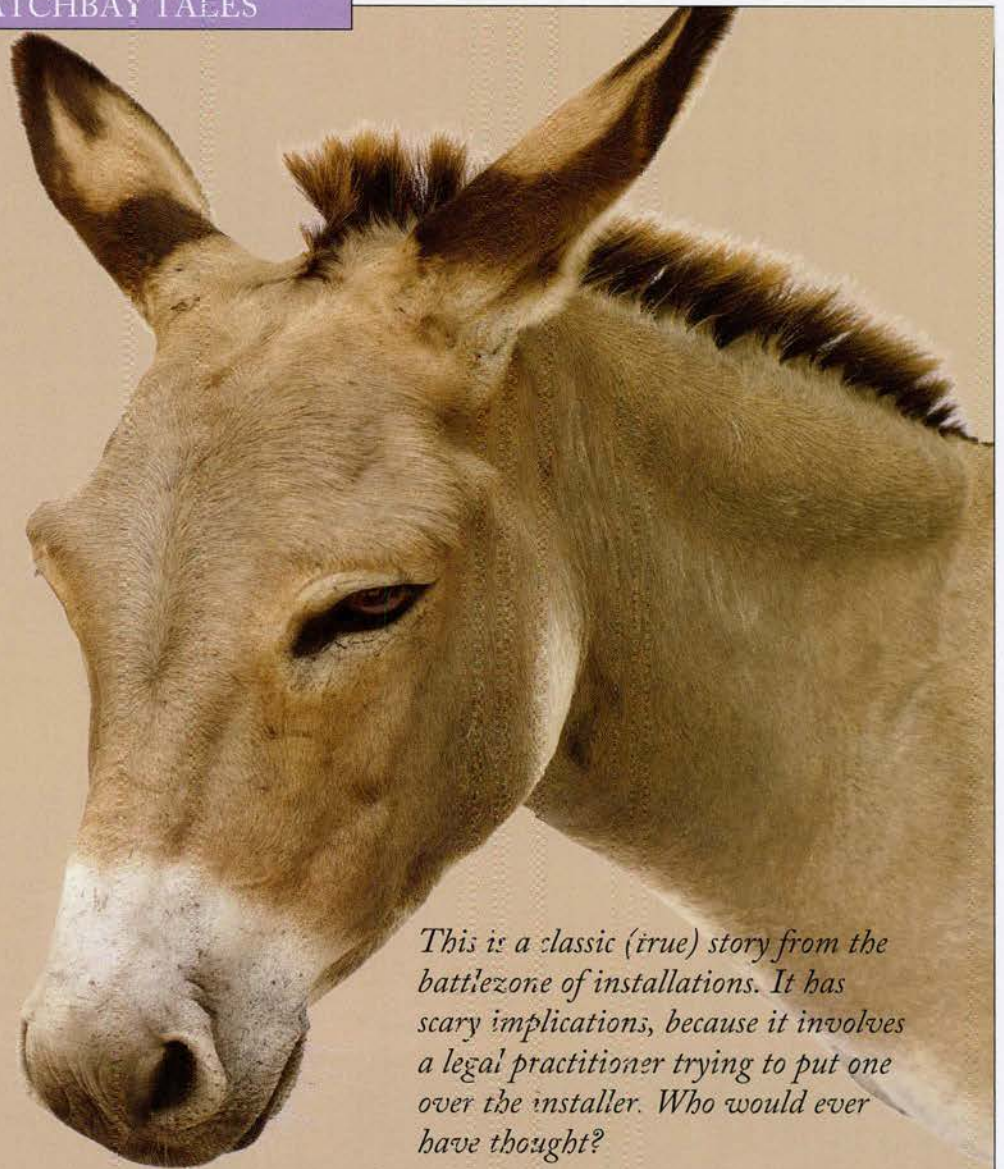
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# THE INSTALLER



*This is a classic (true) story from the battlezone of installations. It has scary implications, because it involves a legal practitioner trying to put one over the installer. Who would ever have thought?*

## THE LAW IS AN ASS

My company had a lawyer client who built his own nightclub. Alarm bells rang and we made sure our contract was checked by our lawyer once we won the tender. We took 15% deposit 21 days before work started, and a 20% progress payment when we finished wiring.

The next phase was where we were exposed, because we had to install the gear to get the main payment of 55% (there was to be a 10% retention for 30 days after commissioning) and sure enough there were rumours amongst the trades that some were not being paid on time, or at all.

We had the heavy stuff in the air, and the electronics locked in a room to which we held the only key when Lawyer came to see us with his story. He was short of cash and would lease the audio visual installation, with a major bank financing our contract.

This is not unusual, but does not usually happen half way through a job. He needed to have approved finance and have settlement with the bank for us to be paid. And he wanted us to repay the 35% we

already had, once the finance was through.

We agreed to work on for one week, whereupon we needed concrete confirmation that finance was in place. This took the form of a letter of comfort from the bank, which said that the lawyer had finance approval in place. They would settle the entire contract on completion, and wanted a finance invoice naming them - the bank - as owners.

The invoice was prepared, complete with serial numbers for all the equipment, and forwarded to the bank ahead of completion which was now just a few days away.

Aware of the risks we scheduled commissioning of the system ahead of the club opening, and spent an evening with the manager and the DJ making sure they knew everything was right. The lawyer pleaded urgent business and could not attend.

Next day we phoned the bank to get our cheque and were told that the deal had not settled, due to security not being completed. Meaning the lawyer had not furnished a mortgage as collateral, as promised.

We were off site, the place was due to open the next night, and the lawyer's

secretary was making noises about him being too busy to talk to us.

Our legal position was we could make a claim and then launch action. Our practical position was that the prick had the gear and we were not being paid, other than the 35% we had.

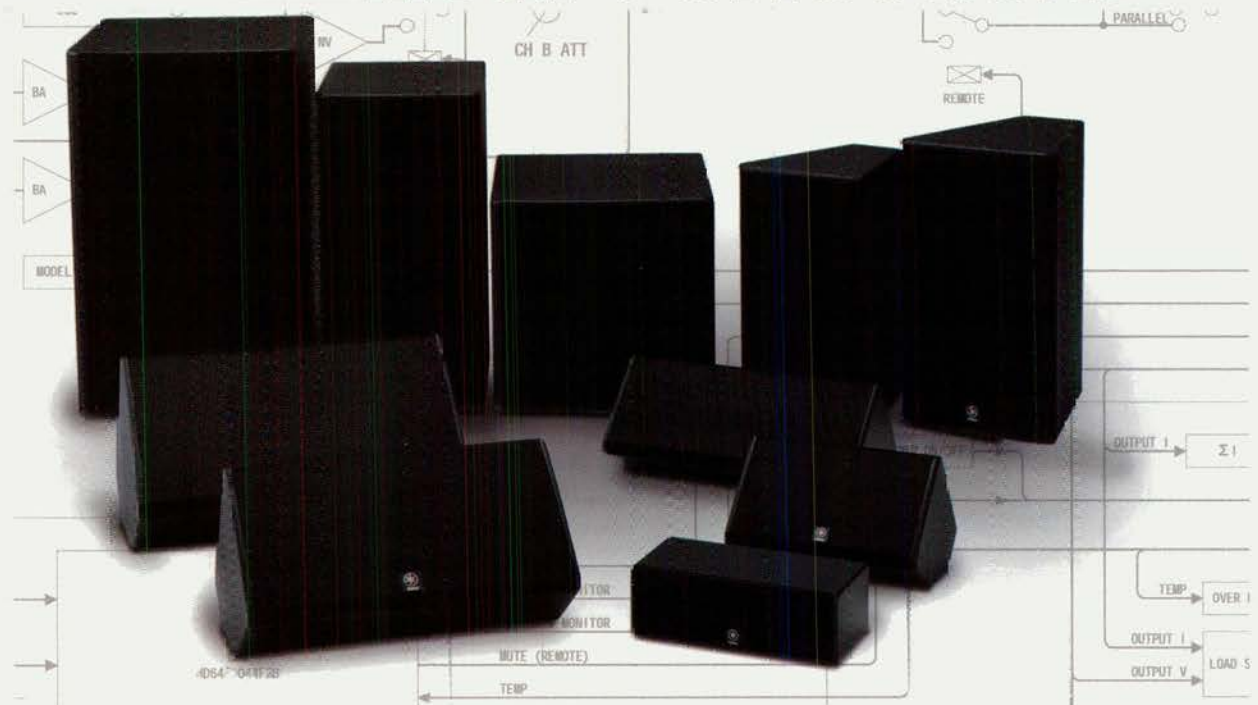
So we did exactly what our lawyer told us not to do. We backed the truck up to the front doors, and swarmed the place with our four techs and six loaders from the crewing agency. Faced with a determined army who were unbolting speakers and unscrewing gear from racks, the manager got the lawyer - his boss - on the line.

He tried the 'this is illegal, the police are coming' line and I told him to go and have sex with himself. Then he realised we would be out of there in minutes and his club would be stillborn. He came good. "The manager has 20 grand in cash in the safe. Go to the office and count it out, and then go four doors up the street to the bank on the corner. My secretary will meet you there with a cash cheque from my trust account".

We were paid in full, but it was a close call. I hope his trust account recovered. CX

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# YAMAHA



# history



This is where we gain some perspective on the crazy world that is 2008 (or 2009 since this issue straddles the new year). History is your friend sometimes, and flipping back through the dusty pages of our magazine always brings back memories for us. Recently the dungeon had inundation of a strange nature, luckily the archives are stored in sealed plastic tubs so barring fire the collection is safe for now.

## 15 YEARS AGO: CONNECTIONS DECEMBER 1993

The cover has a most ugly photo of Madge, aka The Madonna looking like Phylis Diller. 'Madonna Crew Gagged' it says, and the article is headed: No Crew Interviews, No Pictures, No Greatest Hits, Gear Flown In ... and the press pays \$70 a ticket! What IS this? The answer of course is it was a Madonna concert. The paranoia in that camp continues to this day as She Who Must Be Obeyed has a lawyer who gets worked hard.

Another mega tour was in town and the contrast was complete. U2 allowed terrific access, and we got a great story. ZOO TV was the U2 tour where they hung old Trabant cars from the rig.

So you want to buy a recorder? Our



cover asked if the reel to reel was dead and the answer was YES. Since then the modular digital multitrack has come and gone as well – hard to believe, the massive number of ADAT and DA-88 8 track digital recorders came and went before the decade was done.

The company names that are still familiar from this old issue of Connections: Jands, Syntec, Bose, Electric Factory, SAE, Bytecraft,



Production Audio Services, CMI, CLS, Selecon, Amber Technology, Roland, Magna, ARX. The ones that went away: AWA, LAVA, GUVT, AE Australia, DJ Supply Co, Australian Audio Supplies, BASF, Ashton Admor, Three Arts Services.

**Great Letter:** "Rusty Hooker" from Private Dancer in LA was in the employ of the great Tina Turner. He took offense at our critical review of the mix

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at a Tina Turner concert. "Maybe you are out of depth when you diagnose symptoms of tour fatigue" and "Nearly 700 quality shows overshadows the attempted slight of a very good sound engineer by a bitter and frustrated one". One of those great letters pages, since the next letters were "Tina Turner Sound Lags" and "Tina's Voice Soft". Best of all was the 'Sexist Cover' rant which refers to the laser dancer cover – see last issue.

#### WHAT WE PAID:

- Roland S760 Sampler: \$4,495
- Par 64 can: \$64
- Tascam DA-88 8 track digital recorder \$13,398
- Selecon Performer 2500w follow spot \$2,580.

#### 10 YEARS AGO: CONNECTIONS DECEMBER 1998

The C Tick was introduced, where all electrical equipment needed to be checked.

We reported on a Festival in South Africa where Stevie Wonder's crew somehow were very unreasonable in doing a full changeover and line check which kept the audience waiting 75 minutes between his act and the previous. We suggested promoters insist on a maximum changeover time in artist contracts.

Another audio visual industry catfight, this time when the now defunct Gearhouse Group wrote to clients of Staging Connections and enclosed an article from our magazine detailing some production mishap. They hadn't obtained our permission, so we ventilated this in the mag as a warning to others. Unreported was the compensation from Gearhouse, around \$1,500 which we spent on Christmas lunch. What a lunch it was.

Best Live Mixing Console Ever Made! The Harrison Showconsole arrived, and went on to be very popular at Showco, for whom it was made. Later there were claims it didn't travel too well and that maybe just once a rotary encoder caught fire. But in this pre Yamaha PM1D era, it was a trailblazer for mega live digital audio consoles.

Panasonic were pushing the Ramsa DA7 digital mixer, their answer to the Yamaha 02R. The Ramsa faded from view, the Yamaha sold thousands across the globe.

Noise laws were starting to bite in SA and Queensland, a whole generation of venues were forced to close or do something about noise spill.

DAT recorders were alive and well in 1998. But the BASF National Tracking Guide was showing signs of the shrinking of the recording studio market.

Another trend of that time (ten years ago) was the dearth of international tours, caused by a low exchange rate. Signs of things to come in 2009, perhaps. The summer of 10 years ago featured a tour by a reformed Cold Chisel, with the then new EAW KF860 virtual line array. The audio guy at the time chose the EAW system from Norwest over a Jands bid with the S4 system.

LSC Electronics - the well regarded lighting manufacturers in Melbourne - suffered 'temporary money troubles' and we asked, 'is it worth saving?' and answered 'You Bet!' It was saved, and has gone on to build significantly since. Rent the stage show opened in Sydney.


#### WHAT WE PAID:

- Colourset Scroller for a Par 64. \$1,275
- Denon Minidisc recorder \$3,315
- Beyer M88 mic \$699
- Yamaha GA 24 ch mixer: \$4,995
- QSC PLX 1201 amp \$1,895
- Tama boom mic stand \$99.



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# 5 FOLDBACK FIXES

*Too many people think mixing monitors is too hard. In most cases, this is because they've forgotten what they're doing. Let's get back to basics...*

BY ANDY MACKENZIE

**W**hy do we have monitors? So performers can hear themselves. Remember that and you're halfway there. This idea needs to run through everything you ever do with your monitor rig, from placement to EQ to interaction with performers. Remember that when a performer says "I need more in the wedge!" that's not actually what they mean – "I need more" simply means "I can't hear".

Sometimes they can't hear because the wedge actually isn't loud enough, but mostly it's because the wedge sounds dull and isn't cutting through or because they're standing outside its arc or simply because everything else on stage is too damn loud. Make a point of figuring out why they can't hear instead of just winding it up. Here's five tips to make your life easier.

## SET IT UP SMART

The key here is making sure you have a controllable system. Since a large proportion of monitor problems are caused by excess stage noise, you need to avoid being part of the problem. Make sure that whatever wedges you use are directional enough that they only put sound where you want them to.

Use in-ear monitors where you can – they not only put the sound right where you want it, they block other sound out. Remember in-ears don't need to be wireless unless the performer moves around, so drummers, keyboard players, horn sections and backing vox can often be wired back to a simple headphone amp. This has the cumulative effect of saving spectrum and saving money – see chart!

Share sends between performers if it makes sense to do so – backing vocalists don't usually need separate sends and it just muddies everything up. On the other hand, it is rarely a good idea to make anyone share with the keyboard player...

And don't forget sidefill! There is no better way to get good coverage of the stage. Anything that everybody needs to hear, whether it be vocals, piano, lead guitar or whatever else, should be in sidefill. I like to do almost a complete band mix with a bit of emphasis on vocals and melody then everyone's individual sends are simplified.

## GET IT EQUALISED – NOT EXORCISED

The primary function of an equaliser is not controlling feedback. The primary function of an equaliser is to flatten the response of the room/system

combination, and the reduction of feedback is a side effect of this. Anyone can use an EQ to get rid of all possible feedback – I've even seen guys sticking the mic straight in the horn of the wedge and ringing it out – but if you lose clarity and sound quality in the process you're working against yourself. Sure, EQ the feedback out up to a point but do it with the mic where it should be. And always be ready to mute the channel when the singer shoves the mic in the wedge.

Try listening to a CD through your equalised monitors. If it doesn't sound any good you've probably overdone the EQ. Ideally you want it to sound like it did in the studio, but with the vocal cutting through a bit more. If the high mids are a bit harsh, that's probably good for cutting through stage noise.

## DON'T ASK QUESTIONS

Musicians and foldback are like kids and Christmas. Ask them what they want, you're likely to get a long list. Start by giving them something good, they may not ask for more.

Preset the mixes before soundcheck to give each performer what you think they're likely to need and send them out to try it. Don't ask if they want it changed, or they'll find something to ask

## SAVING MONEY – DITCHING BATTERIES

One wireless beltpack chews around \$2 per hour of batteries! If you put those performers on wired in-ears, you save.

| # of wireless | \$ per show | \$ per month | \$ per year |
|---------------|-------------|--------------|-------------|
| 1             | \$6.00      | \$30         | \$360       |
| 2             | \$12        | \$60         | \$720       |
| 3             | \$18        | \$90         | \$1080      |
| 4             | \$24        | \$120        | \$1440      |

for. If they're not happy, they'll tell you. Trust me.

Similarly, always leave yourself some headroom to go a little bit louder if you need to – but don't go telling people there's more, or they'll want it. Remember the classic foldback request – '...everything just a bit louder than everything else. And me a bit louder than that.'

### EXPLAIN YOURSELF

Never leave the performers in the dark. If they do make requests, clarify what they're looking for and explain how you're going to give it to them. If the singer asks for more vocal in the wedge but you can see that they can't hear because they keep walking out of the wedge's coverage, put

more in the sidefill. But tell them you're putting it in the sidefill so it covers the stage better – that way they're listening for that rather than waiting for the wedge to get louder.

If they're asking you to turn it up beyond what you think is realistic, remember they don't want loud, they want audible. Quit turning it up, figure out why they can't hear properly and take action to fix the problem. Keep explaining yourself all the way through – apart from anything else, if you can educate the performers to think about their own stage noise, it's only going to make them easier to work with in future.

### STAY IN CONTROL

One of the greatest terrors for the

monitor engineer is when performers start a war of escalation. You know the one I mean. The singer can't hear over the sound of the guitar amps, so they ask for more; instantly the guitarists turn their amps up because they can't hear over the vocal. Repeat indefinitely until something (or someone) explodes.

Don't let this happen. As soon as you see it starting, address it. Point out the problem to the performers and find a solution. If the guitarists want more level, try sending a bit back into their wedges – this makes it louder, but in a more controlled area. Alternatively try shifting the guitar amps so the singer doesn't cop so much from them. Or get the singer onto in-ears. There's almost always a better solution.

There's a lot of performers out there who've had their hearing permanently damaged by people giving them what they ask for. This makes it harder for subsequent monitor engineers and raises the possibility of some interesting (expensive) legal discussions about duty of care. Controlling the stage sound makes it easier for both the FOH operator and the monitor operator, improves the audience's experience and makes the performers last longer. Why not do it? **CX**

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# SUMMER OF 69? NO, WINTER OF 59

Rock and roll I gave you only six months of my life...

*"I got my first real 6 string, bought it at the five and dime....  
and my family listened 50 times to my two song repertoire"*



BY DUNCAN FRY

Well, it's that time of the year again. A time when we put aside old differences, catch up with old friends, reminisce about the old days...BTW I'm talking about Christmas, not a celebrity funeral. Hang on though - no, I'm mistaken - the original celebrity funeral was Easter. Christmas was the original celebrity christening. Sister Mary Elephant (thanks Cheech and Chong) would have me writing out the Old Testament ten times for getting that wrong.

But Christmas was the time when my interest in music was originally kindled. When I was a young Pom, one of my teachers at primary school had a big reel to reel tape recorder, a Brennell\*\*\* Mk 5, onto which he had recorded a whole stack of music from the radio. He would play it during the last hour of class on a Friday just to keep us quiet, and we'd all be a-jivin' and a-boppin' around the classroom, knocking over tables and chairs all pretending we were rock stars.

So it was only natural that I should grab my Dad's sleeve when passing a music shop while out shopping one day and gabble excitedly,

"Ey oop Dad, ah want t'guitar for Christmas."

I carefully studied the contents of the shop window, and grunted "Ah want that won", pointing to a big acoustic guitar marked Bargain. Although to tell the truth, in terms of Little Britain stereotypes I probably sounded more like Daffydd than Andy, having spent several years at a boarding school/penal colony on the North coast of Wales before coming back to live in London. And at a time when gay meant happy, not a receiver of swollen goods!

However, a bargain it was at two pounds seven shillings and sixpence. My Dad was unconvinced.

"Eee Dooncan, that's a lot of brass, son."

"Please Dad." I begged, hardening the tone of my voice slightly, with the



implicit threat of throwing a tantrum on the floor if I didn't get my own way. A skill that my daughter Fifi Trixiebelles Sunday Roast perfected at a very early age. Ah, the apple never falls far from the tree, does it?

So my Dad dutifully bought it for me. I dutifully acted surprised on Christmas

Day, then proceeded to spend the next six months running around screaming the words to Lonnie Donegan's Rock Island Line, Danny and the Junior's At the Hop and banging away on the guitar strings just as I had seen the stars do on telly.

I even got a bunch of friends together

and we went around to an old people's home and sang and played for them. It was so successful that they gave us five pounds to go away and promise never to come back again. We repeated the scam, sorry, I mean charity work, at a few places around the town, leaving groups of old folks quietly sobbing into their hands, moaning "Make it stop."

My auntie had a record player that only played 78s. For those amongst you who were not born halfway through the last century, 78s were a hard brittle plastic record ten inches (25cm) in diameter that spun at 78 rpm. They were quite likely to take an ear off if they got dislodged at speed, or at the very least leave you with a passable imitation of a Heidelberg duelling scar.

It was a time when 78s were being phased out in favour of 7 inch 45s. Luckily you could still buy some 78s, though, and my auntie had quite a collection. Most were saccharine goo like Shirley Temple singing Animal Crackers in my Soup. Aagh, I can hear it in my head now; and it still makes my skin crawl.

On the other hand, she did have a 78 of Elvis Presley (with Bill Black's Combo, it said on the label) singing

Hound Dog, with Don't Be Cruel on the flip side.

Wow – that was more like it. I played the record endlessly. I now had three songs I couldn't play or sing properly, but was that going to stop me? No, but the restraining order that the local police brought around did! Just kidding.

I caught up with my auntie many years later on a trip to the UK.

"Tell me, Auntie, I asked, "Have you still got that 78 of Elvis Presley singing Hound Dog?"

"Oooh noo," she cooed. "Ah stepped on it and broke it won night when ah were pickled!"

My vision of inheriting it and selling it at auction for squillions popped like a bubble on a summer's day. I mentally added it to my list of things that I should have hung onto while I had them (E-type, Vox AC30, Rickenbacker 12 string, house in Brighton...the list of mistakes is endless!) as I said goodbye and headed off home to Oz.

Guitar-wise, I slowly came to the realisation that there was just a little bit more to playing the guitar than banging on the strings. There appeared to be quite a lot of things to do with the left hand as far as making chord shapes went,

but the left over pieces of Transatlantic cable that the guitar was fitted with instead of strings were very tough on my tender young fingers, and gradually my interest waned and I took up drums. Failing at that too, I eventually took up live sound mixing, and it's all been downhill from there!

The arrival of the Rolling Stones first album in the 60s, starring my old school chum Mick from Dartford Grammar, re-kindled my interest in guitar playing. I dug out the old guitar, put some decent light gauge strings on, and sat around the house in sunglasses singing "Well I'm a King Bee, buzzin' round your hive", and even I could manage the single chord in their version of Bo Diddley's Mona!

Have a great Christmas, Hanukkah, Global Financial Crisis, whatever, and I'll be back in the New Year with more of the same. A teacher in school once told us that the ancient Chinese traditionally used to pay all of their outstanding bills up-to-date by December the 31st. I put my hand up and said "Of course they did - they hadn't had Christmas six days earlier, had they?"

*\*\*\* A UK brand which eventually morphed into Allen and Heath.*

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# SOUNDCRAFT VI6

## DIGITAL LIVE CONSOLE TAKES CENTRE STAGE

*There's Japan (Yamaha), the USA (Digidesign) and there's the United Kingdom (Midas, Allen and Heath and Soundcraft). Europe has its contenders too. Now the digital live mixer market has reached fever pitch as every half capable live audio outfit makes big investment decisions and migrates out of those old, heavy analogue consoles. Soundcraft's approach comes under the microscope at CX...*

By **JULIUS GRAFTON**

First there was Studer with the Vista range of digital audio consoles. It didn't take too long for family ties to migrate from Switzerland to the UK. Soundcraft and Studer are owned by Harman International, and occupy almost completely different markets within professional audio.

Back in 2002 Studer came up with

a winning concept they call Vistonics, where rotary encoders and push buttons are integrated within a graphic display. In other words, there are knobs and buttons along the screen, so the function of each can change instantly.

Last year Soundcraft launched the Vi6, based heavily on Studer's platform, processing and Vistonics but designed from a UK live sound perspective. Because it came with Studer lineage, they defeated the major buyer concern which is: Will It Be Stable and When Does it Crash?

With the confidence of the Studer platform a major boost, the live market is looking at the Vi6 with interest. Soundcraft has a smaller work surface called the Vi4, while Studer have a live version of their Vista family called the Vista 5 SR. These all dovetail neatly in the marketplace, and these all have Vistonics.

At presstime Soundcraft also announced the Si3 console, but it has little lineage to the Vi or the Vista, so that's another story for another day.

Soundcraft have dabbled in live digital in the past, and those dabbles were not successful. We were particularly anguished by the Spirit 328 digital console, and prefer to forget about it. Hence we were enthused by the Studer connection, even before we got our hands on a demo Vi6. The day arrived late in 2008, and we have had a system here in our facility for this review. It got pushed into immediate service for a production without a product specialist in sight.

Trainer Steve Defina supervised Josh Jaworski (a technical student) as he set the console up. It was 10am and the production was curtain up at 1pm. Here's what we discovered...

### FIRST IMPRESSIONS

This is a very attractive work surface. The console is finished in burnished metal with a sloped section beginning almost exactly halfway up the face. This boomerang shape is relatively common to consoles but also hard to get right. If you have the rear, sloped section too upright then it messes with sightlines in theatres.



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Too shallow and the operator can't reach or see the screen/s properly.

Down front are five groups of 8 faders, above each is a screen with 16 rotary controls and 16 buttons in the lower half of each.

Finish is excellent, structure is solid, solo and mute buttons have a desirable contact. Faders have a good weight. Ergonomics are right for people of average height and reach, and probably still good for slightly shorter versions.

Along the very top of the console is a lip with recessed and subtle LED lighting that removes the need for gooseneck lights.

The upper half of each screen is touch sensitive, while the lower half is loaded with the rotary encoders and buttons. A good feature: aside from the label you give each channel, there's a little readout that shows where the input is coming from – ie: IP (input) R05 (means stage

rack 5) Mic B8 (which is input B8 on that rack).

## SETUP

There is a local rack, with inputs and outputs, this connects with a small supplied loom to the work surface. It has a Cat 5 connection, talkback and headphone line. Other than that, there are a few MIDI connectors on the back of the work surface.

Those local rack connectors were the subject of debate here, because while there are 16 analogue XLR line inputs, there are just three mic inputs. This makes looking up a 'B' stage near the console just a little harder. There are 16 outputs at the local rack as well.

From the local rack, optical cable (up to 1,500 metres) with expensive Fibrecast connectors runs off to the stage rack, which has 64 inputs and 35 outputs loaded. One optical cable will do the



job, but a second is recommended for redundancy. You can use Cat 5 instead, but it isn't recommended for runs of more than 70 metres.

Physical setup is a no brainer, but the work surface bootup is a bit of a long wait. Once booted, all is good. Naturally anyone serious about audio would have uninterruptible power supplies (UPS) on the racks and work surface, to avoid those nasty little mains dropouts which can and do happen anywhere, anytime.

Faced with the work surface all lit up and ready to roll, you need to spend around an hour really familiarising yourself with the layout of the console and the possible button pressing actions.

## MIXING

Assuming someone has configured the inputs and outputs, common use is relatively easy on the Vi6. The first thing you notice is the super amazing FaderGlow feature, where the fader assignment is accompanied by a coloured illumination of the fader track. It's a 'wow' moment, which means immediate clarity of mind as to what the fader is will do for you.

In normal 'mix' mode, there is no fader glow. This means the fader will push the input channel level. But when the fader is contributing to – say – an auxiliary bus, the colour orange warns you. If it is contributing to a VCA master, the fader colour is blue. Green is for a matrix group. Red means the faders are controlling a third octave equaliser. You very quickly come to appreciate the colours.

Vi6 has 32 busses which in typical use would be set up as 16 aux, 8 group and 8 matrix outputs. In addition there are main LCR or LR output busses, for a total of 35 outs. The 64 mono inputs can be expanded up to 96 with extra hardware, meaning the 32 input faders operate three pages or layers, instead of the standard two pages or layers.

Every 8 channels have a screen. Select

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- Increased flexibility in Compressor and Gate assignment
- Addition of 8 Matrices
- Direct channel output assignment for increased flexibility when using a personal mixing system and recording splits
- Tap tempo for delay settings
- Additional number of shortcuts for faster access and quick setup
- Numerous user interface enhancements for accelerated workflow and ease of use.

This new software is a free release for all registered M-400 V-Mixer owners and can be downloaded at [www.rolandsystemsgroup.net](http://www.rolandsystemsgroup.net)

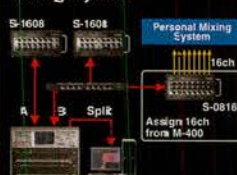
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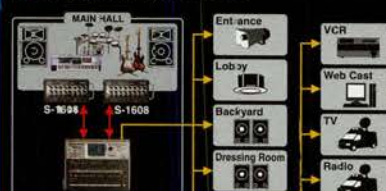


Freely assign Gate/Comp to Channels 1-48

24 Gates and 24 Compressors can be used simultaneously on any input channels

Gate/Comp Free Assign to 1-48CH

Addition of 8 Matrix Buses



Addition of Short Cuts

Allows quick access to Effects/GSO edits or Mute/DCA groups etc. helps faster setup of the console.

Additional Effect

Tap tempo is added as delay parameter setup for more intuitive operation and ease of use.



the channel and you get a full set of controls (16 rotary and 16 buttons) on the bottom of the screen. The channel strip on the screen has an area for EQ – touch that, and all the bottom controls go red and form a four way parametric equaliser for the channel. Touch the auxiliary area, and there are 16 auxiliary sends with pre/post switches for you.

One thing that slowed us down was assigning a channel to a VCA. You go to the VCA setup, a round button on the left of the master faders. Select any one of 16 VCA's, then select the channels using solo select buttons. There's a blue LED next to the fader to show which VCA you are assigned to. As soon as you figure it out it makes complete sense, but we wasted a few minutes poking around the channel screen trying to find VCA select buttons.

It's quick for the average brain to get around the Vi6 then things happen fast.

The effects engines are voiced by Lexicon, and provide all the usual possibilities.

Down on the lower face of the work surface is the channel fader, with select and cue buttons, a nice big LED ramp and a F switch. This changes inputs, so you can have an A and a B input per channel. There's also an ISO switch, which seems to kill all signal paths out of the channel as opposed to muting the outputs using a mute button.

The console sounds good – as you would expect from something with a Soundcraft badge it's neutral and clean. EQ and processing are similarly neutral and the onboard Lexicon effects engines give solid effects without any of the sibilance or harshness that effect some others.

## CAN DO BETTER DEPT

When the console is in position and ready for work life is great. But before then you are faced with a slightly bulbous roadcase with four suspicious pole receptacles in the bottom. Pull off the



Josh Jaworski at the helm of Vi6.

nose of the case, and it is strangely heavy. That's because inside is a compartment with two scaffold pipes in there, part of the integrated console stand that is making the roadcase slightly larger and heavier than it needs to be.

Sure enough when you get the lid off the console, there's two end sections for the ground stand in a compartment inside. We laid the thing over, and put the stand together. Then we had the awkward task of upgrading the console on the stand. It wasn't comfortable or intuitive.

Score great for the console when upright and ready for use. Score poor for the integral stand – we prefer a console roller, and we have one on hand here, just like most console users who see the wisdom and legal smarts in not lifting large objects.

Worst of all, the two scaffold pipes could – just could – be hurled into the case by a loader who isn't thinking. Have you met one of these? Then there could be five smashed screens and who knows what other damage done.

## CONCLUSION

We like it! The price is around \$230k fully optioned, and there is a slightly smaller work surface (vi4) running the same system which knocks around 20 grand off the price if you can go with one less channel module.

There's room for a smaller (cheaper) Vi in the market, given Studer have the Vista 5 SR which occupies the turf above the V:4/Vi6. Soundcraft have just released the SiE but it appears to have no Studer lineage, making it a different animal altogether. **CX**

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# ChamSys MagicQ

*The MagicQ is the latest offering in lighting control from ChamSys UK. It arrived on the CX bunker doorstep in the wake of a college rally, accompanied by Chris Kennedy from ChamSys UK, and Gordon Anderson from Lighthouse Distribution who came along to give us the tour. Introductions made, we proceeded inside to take a closer look.*

By JAMES DENOUDEN

## THE HARDWARE

We opened the case up and there inside proudly sat the MagicQ Xpert console. We looked at the Xpert console, however there are several different hardware options available starting from the ridiculously cheap right through to pro touring budget. Basically the fewer faders you require, the cheaper it gets. The hardware itself is nicely built and on the whole has a nice solid feel to it. The dimmable LED desk lights are a nice touch.

The layout on the Xpert console is not unfamiliar; after all there are only so many ways you can set out a console. There are a bunch of playback faders, which sit nestled below a large colour touch screen. There are wheels for spinning, and a fairly standard numeric

type keypad. There is something of a familiar feel about the MagicQ - it's nice to be able to approach a new piece of gear without feeling instantly lost. The number of hard keys (for functions like patch, system setup, etc...) struck me as interesting. There are heaps of them, which means less time spent diddling around in menus to find stuff. The less frequently used keys are sensibly placed toward the upper end of the console, with the closer space below reserved for more frequently used ones. The touch screen is surrounded by keys, which you can use to access context-sensitive functions or jump values rather than spinning an encoder.

The back panel is neat and functional, and the PowerCon AC connector is a nice touch. It's connected to the internal UPS, which is good for up to 15 mins on a full charge - more than enough time to hit save and shut down in the event of a power loss.

## THE SOFTWARE

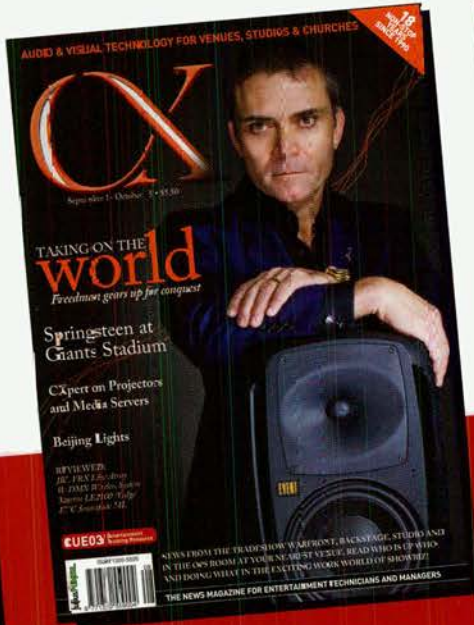
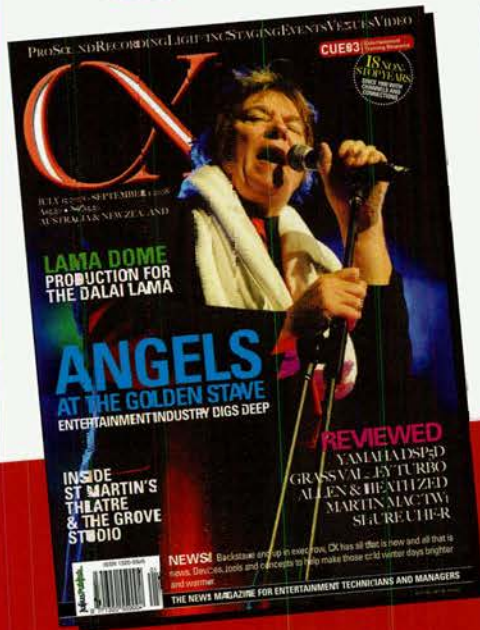
The MagicQ software can operate either on a console, or you can run it on a computer. It's free, and fully functional. Better yet, it's available for both Mac and PC. The computer-based versions basically replicate the layout of the Xpert console, so if you're used to using the software switching to any of the hardware solutions should be a snap.

The MagicQ software will support up to 18 DMX universes, and runs either DMX, ARTNET, or a combination of both. So far as getting DMX out of the computer, you can use the ChamSys hardware, or a number of third party interfaces. In fact the starter kit includes an ENTTEC unit. Need more universes? Just add more interfaces.

MagicQ also has in-built pixel mapping - it's got some seriously advanced features which allow you to map images or text to an array of LED

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The MQ100 under test in the CX bunker.



Maxiwing - the largest of the three available USB wings for computer..



Chris Kennedy shows off the console.

fixtures. You can control individual pixels in multi-element fixtures too, thus achieving higher resolution. Auto-grouping lets you set up effects on rows or columns without having to individually select a pile of fixtures to do it. The pixel mapping is too detailed to do justice in this review – best would be to have a play with it yourself. The same applies to the media server control – which is also built-in and also free. I didn't get a chance to try it out, but the theory is that you can control up to 50 media servers such as Hippotizer, Catalyst and Arkaos among others.

### USING IT

The first order of business was of course to try and break it, and Chris promised me a pint for every time I succeeded. The worst I can claim about the MagicQ is that it forced me to buy my own beer...

So far as operation goes, the first step is setting up your fixtures and patch info. Easy, press the "Patch" button and you're away. The fixture library is huge

already, but there's an in-built fixture editor in case you can't find the fixture you're using in there. Once the fixtures are patched, you can automatically generate palettes which appear on the touchscreen when you press the "Palette" shortcut key. The palettes for gobos and colours actually look on-screen like the gobos and colours in your fixtures too. If somebody's changed all your fixture gobos, just match them up in the fixture editor and regenerate the palettes.

After you've got your palettes sorted, programming looks is simple. Choose a fixture, choose the parameters, point it wherever, hit record, and choose a playback master. Does this process sound familiar? Perhaps, until you factor in that you can record times into this at the same time as you record the cue. Then add in the various fan options. Then add in the option to run your lists in chase or cue mode. Then factor in how easy it is to change fade or delay times. Then throw in a bunch of other cool stuff, different cue list playback modes, ability to program in one mode and playback

in another, and edit multiple fade times simultaneously. You can even get visuals from the media server displayed on the console's touch screen. Then remember the software is free. Smile.

The bottom line here is that the whole thing is pretty logical – being able to run in "Hog II Warp Mode" also helps. You could probably figure out basic functionality without much assistance however you'd miss out on a lot of the cooler features you get from reading the book. I didn't get to play with it for as long as I would have liked, but even just the first ten minutes was enough to leave me feeling comfortable enough to take it on a gig. Impressive stuff.

### PLENTY OF OPTIONS

The entry level system is the ChamSys starter kit which includes the software on CD and a USB to DMX widget, and retails for \$342.00 inc GST. If you'd prefer to have some playback faders best look at something like the PC Mini Wing, which has a USB port and an DMX output as well as 8 playback faders (which span multiple pages). It goes for \$2,331.00 inc GST, and even comes in a little roadcase. If you'd prefer to have your software with a console wrapped around it, your options start at the MagicQ MQ100 Xpert console, which retails for \$28,360.00 inc. At the top end of the scale sits the MQ300 Fro, which goes for \$56,305.00 and gives you oodles of everything including buttons that light up, onboard Ethernet switch and USB hub, and some extra connectivity options.

We could fill this whole issue with info, but personally I prefer to use the gear and figure out if it works for me. To try it yourself get on to <http://chamsys.co.uk> and download the MagicQ software, or for further information on the hardware range contact Lighthouse Distribution.



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# TANNOY QFLEX

## STEERABLE ARRAY



QFlex16 without the grille.

*Tannoy have been a significant player in the loudspeaker world for a long time now, and have a distinguished history of providing innovative audio solutions. QFlex may look like just any other column speaker, but once you lift the lid you find a whole lot more going on...*

By **ANDY MACKENZIE**

Column speakers have been around for a long time, and work on the same general principle as concert line arrays – stack up a long line of speakers vertically and the interference between them narrows the vertical dispersion while leaving the horizontal dispersion unchanged. In effect, this funnels the sound into the area in front of the column rather than wasting it on the floor and ceiling.

There are a couple of disadvantages to this approach. First, the coverage area is both fixed and directly in front of the box so you may need to do some tilting of the box to get it in the right area. Second, the whole idea only works below a maximum frequency determined by the centre to centre spacing of the drivers. Beyond that frequency you get all kinds of weird lobing so the high frequency usefulness is limited.

### THE TANNOY SOLUTION

The Tannoy solution is designed to deal with both these limitations, and it does so in very clever ways. Let's look first at the way they've sorted out the high frequency issue. Rather than running a single set of full range speakers, Tannoy have used a multi way system which uses a combination of three and four inch cones for low/mid and one inch HF domes. The HF drivers' acoustic centres are only 30mm apart as a result of some ingenious magnet and heatsink design, maintaining the array effect well over 10kHz.

The issue of angling the box is dealt with rather differently. Tannoy have taken full advantage of current DSP and

amplifier technology to build the most multiway of multiway systems – each individual driver has its own DSP and class D amplifier. The idea behind this is that by applying very small delays across the speakers in the array it is possible to 'steer' the array. Slightly more delay on the drivers at the bottom of the cabinet aims the sound downwards, slightly increasing the delay at the top of the box aims it upwards. The theory's been around for a while, but until recently no-one had the technology to build it.

As a result, you can deal with pretty much any application with the column bolted straight up to the wall. Speaking of which, the hardware required to hang the system is simple, effective, and supplied as standard equipment. The bracket fixes to the wall and the QFlex column simply clips on. It can be adjusted horizontally and this, combined with the vertical beam steering makes it easy to ensure good coverage.

### SOFTWARE CONTROL

At this point some of you are probably wondering how we calculate and set the infinitesimal delay times necessary for beam steering, and fair enough too. The good news is that you don't have to. QFlex is controlled by Tannoy's VNet system, so it can be incorporated as part of a larger Tannoy networked system, and the control information for QFlex is developed using the BeamEngine GUI. You punch information about the coverage you want into the BeamEngine software, which does all the calculations and stuff, then export the resulting file to VNet. I can't help feeling that having all the software control in one package would be a more elegant solution, but this does the job and the interface is reasonably intuitive.

This rather clever little software package takes things beyond simple beam steering too. You can pile in information about what SPL you want covering what areas, and it will figure it out. In a theatre where you want to cover the floor and a couple of balconies, for example, you could have this fire several separate beams to cover the multiple zones. You can also program in 'silent' areas – areas

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## CAMPUS MEGA TEST REVIEW

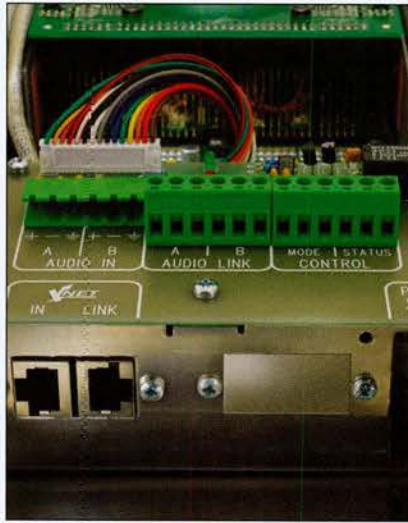
from which sound is deliberately steered away. Think about a venue where the reflections from the ceiling ruin the acoustics.

One tip for young players though – remember to set the height of the coverage area appropriately for your audience. If you don't, the coverage will wind up tailored to the floor. I'd normally use about 1.7m above floor level for a standing audience or 1.2 if they're seated.

### SOUND AND SIGHT

Inside the coverage area, it sounds good – provided you allow for the fact that its primary function is speech reinforcement. Speech is clear and intelligible, and programming silent areas to reduce reverberation improves this even further. When you change over to a music track the clarity and accuracy of reproduction remain, but there is an obvious weakness in the low end. Given that the LF comes out of four inch drivers, we shouldn't really be surprised. It's still quite listenable, but if you want bottom end power you'll need to put some subs in the system somewhere.

Outside the designated coverage area the attenuation is better than you might first expect, especially if you've taken



Audio, data and power connections are all buried in the box

steps to control unwanted reflections. As you would expect, the lower the frequency the less effective the beam steering, but there is perceptible attenuation well down into the mids.

As far as appearance goes, it's subdued to the point of boredom. In fact, the appearance of this device is so bland and unobtrusive that I couldn't find anything interesting to photograph without taking



QFlex16 uses specially designed magnet and heatsink structure to keep the HF drivers close together.

the covers off. This is a good thing in a speaker system destined for the installation market.

### APPLICATIONS

As far as applications go, there are a number of obvious candidates. The usual speech reinforcement market of theatres and churches spring immediately to mind, particularly those with challenging

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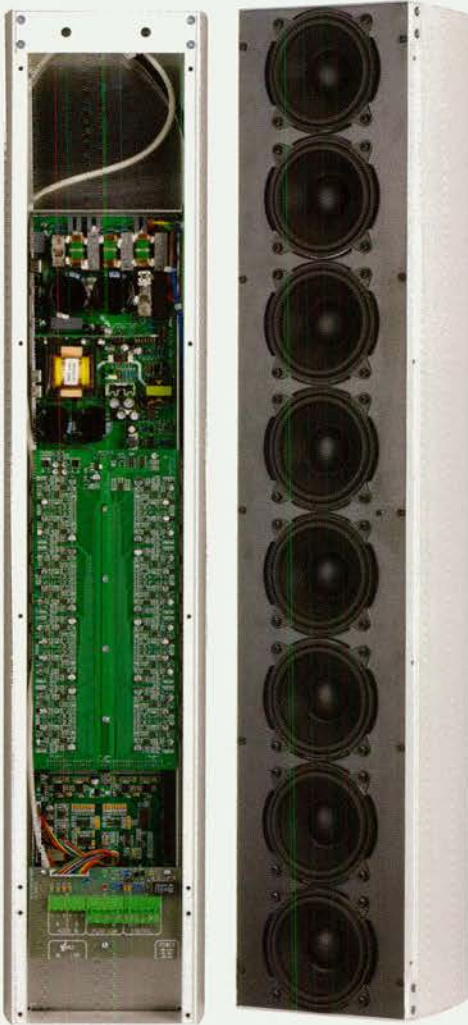
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*Left: Every speaker has its own DSP and amplification. That makes for a lot of electronics.*

*Right: QFlex8 without the grille.*

acoustics. Then there's huge potential for installations in public spaces like shopping centres, train stations and airports where the echoes and reverberation can make most conventional systems sound like garbage.

QFlex comes in two basic module blocks – one with eight four inch drivers, the other with 16 drivers, eight each of three and one inch. Each module has all its amplification and processing on board and is available in either master or slave mode. The only difference between masters and slaves is that masters are fitted with audio, power and network inputs, while slaves rely on a feed-through from the master. All the different sizes of QFlex columns are built from these basic blocks – a QFlex 24 like the one I played with is built out of an eight channel master and a sixteen channel slave, with the slave fixed to the top of the master.

The data and audio inputs on the master module are buried inside the back of the unit. Audio input is either analogue or AES/EBU, while the control signals turn up via RS-485 on cat5 cable (so you'll need an adapter to get your computer talking the right language).

### AND WHAT ABOUT THE PRICE?

As you would expect in a scalable system, the price varies depending on what you get. The cheapest in the standard range is the QFlex 8 (a single 8 channel master module) at \$6144 plus tax, the most expensive is the three metre long QFlex 48 (two of each module in one long line) at about 30 grand. The CX test victim, the QFlex 24, goes for \$14935 plus tax. It's distributed by Syntec International, who'll be more than happy to help you work out what you'll need for your project. **CX**

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# AUDIO TECHNICA M3 WIRELESS IN-EAR MONITORS

*Wireless in-ear monitoring has been around for a while now, and as it has gained acceptance it's filtered down from the stadiums to the RSLs and pubs. Audio Technica's M3 system provides a feature set that will adapt to just about any situation.*

By **ANDY MACKENZIE**

There's only so much variation you can have between IEM systems – monitor signal goes into a transmitter, thence through the air to a beltpack receiver that shoves it into the ears of the recipient. It's all done in FM, because that's what works, using unused bits of UHF TV spectrum, because that's what's available. The devil's in the detail and it's all about features and functionality.

## RF CHANNELS

The M3 system is built in four frequency bands, but only one is currently available in Australia. Don't blame the manufacturers or distributors for this, they're chasing more spectrum like the rest of us. Within the available frequency band, you get a choice of six channel groups, each of which will support the simultaneous operation of up to sixteen channels. It's worth noting here that no wireless system can guarantee interference free operation, because interference is largely dependent on the RF energy from other sources (TV transmissions, comms channels, wireless mics and so on).



Hence the multiple groups – you use whichever group fits best with the other spectrum use.

You've actually got a range of frequency selection options – as well as the group/channel system, you can go full manual which gives you a choice of 1300 odd individual frequencies. Most

users are unlikely to go near this, but for people working on big complex RF plans it could be an asset. For those who want to keep it really simple there's a scan function which tells the receiver to scan the selected group and pick the first interference-free channel. In addition to the six preset groups, there are 3 user

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groups. These come with presets already loaded, but these can be written over if you have your own preferences.

Between the available options for frequency selection, pretty much every potential user is catered for – from the muso who needs something as close to idiot proof as can be built to the RF system tech who needs total control of every RF device in the show.

## BUILD QUALITY

When I opened the box, I was pleased to find that the m3 system is solidly built, using a steel casing for the transmitter and a seemingly quite robust plastic casing for the receiver (I didn't actually take to it with a hammer or anything, but it felt pretty sturdy when I was playing with it). The package comes with pretty much everything you need to get the system going – transmitter, receiver, earphones, antennae, rack mounting hardware and the ubiquitous plugpack power supply for the receiver – but no batteries.

After a short interlude of lumbering about the place looking for two AA batteries, I was in business. The system sets up easily and worked a charm on the first channel I selected. This was a tiny bit disappointing, since I wanted to try the automatic frequency scanning thing – so I ran the automatic scan anyway, and it selected the same frequency. Oh well.

## FEATURE SET

Feeding some signal into the transmitter, I found that the front panel's backlit LCD screen has nice little meters that let you know the signal's actually getting in. This is a good thing, and if you find the metered levels disturbing you can use the attenuator switches on the back (one for each input). Input connectors are XLR/6.5mm combo type and there's also a convenient loop output on XLR for each input.

Going back to the front panel, the pressbutton interface works fine and the LCD display makes the menu accessible. There's also a headphone output with its own level control that allows you to have a listen to what's coming in.

The receiver offers all the things we've come to expect from an IEM system – stereo or mix mode selection, variable limiters that can be switched out altogether to allow the hard of thinking to become hard of hearing as well, level control and display so you know what adjustments you're making, and so on.

It also has a little jack on the side for an auxiliary input, which can be set to either mic or line level and has a switch. The nicest suggested use for this is to hook up a lapel mic as an ambient so you can effectively interact with an audience – and switch it off if you don't want to! The only thing that I didn't like about the setup of the receiver is that the aux input is on the side of the pack, and I reckon a connector sticking out the side is just asking to get broken.

The whole thing works well, and the little headphones supplied with it do a good job of both their tasks. It's important that they reproduce sound well, but it's also important that they offer reasonable isolation from ambient noise. These can be used with rubber cup or foam earpieces (both supplied in the test kit) and I'd be very surprised if you couldn't get custom moulds (the best option) made to fit.

## PRICE

Pricing is good at \$1995 including GST for the m3 system as tested, but if this is outside your budget and you don't need sixteen channels you could look at the \$1495 m2 – this one is limited to only ten channels per group. The distributor is Technical Audio Group.



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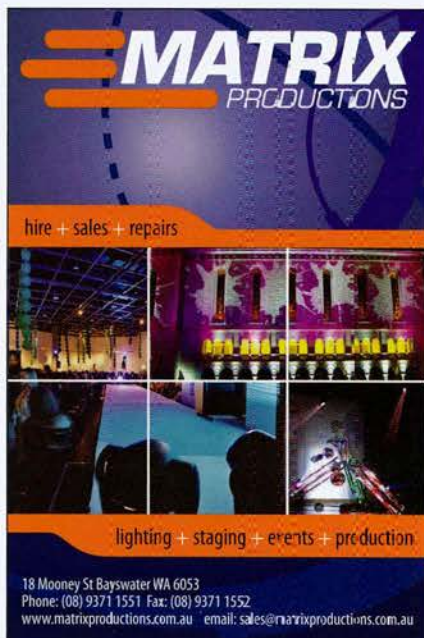
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