As we pull up the the LG Arena in Birmingham on an uncharacteristically hot and sunny English day, troupes of crew members and trucks full of wardrobe changes fill the back of the venue. At the helm of the tour is Jay Schmit, Katy Perry’s Production Manager, a man who having first had a career as a US Navy Fire Control Officer, runs the inside of a world-class production like a slick operation indeed.

He was a carpenter by trade when his skill turned into a touring career. “I initially gained employment with Stageco. I worked for them for a number of years from the US office, but I toured internationally with acts such as U2, The Rolling Stones, Dave Mathews Band and Metallica. I left Stageco in early 2000 and started working as a rigger and went from being a rigger to a stage manager and then into production management,” he said.

It’s 10 years later and Schmit has PM’d for the likes of Paul Simon, Simon and Garfunkel, Journey, Alanis Morissette and Shakira.

“I have been with Katy for just over four years now,” he told TPi in the production office he shares with the rest of the production team: Kim Hilton, Tracy Baiotto and Tasha McCartan. As a PM, I typically try to use the same vendors. A relationship with a vendor grows over time and you become very tuned into each other’s needs and capabilities. It’s an easy prediction of what you are going to receive and you know the product and the service you’re going to get. If you’re loyal to an individual or a company, I believe that they will give you the same back and it seems to have worked so far. I don’t think it is a standard across the board, but that’s what I tend to do.

“I put together a rigging team that we have worked with over the years. Chuck Melton is my Lead Rigger who has been in the business longer than me. I have learnt a lot from him; I trust him emphatically with decision making because I think that is the foundation for every show.”

For Prismatic, Load Cell Rental provided weighting documentation for the safety of the show. “The rigging is first for a reason: it has to dictate how and where you put your stage, it dictates accessibility for all the fly gags. With Chuck’s expertise we have a really strong team,” continued Schmit.

“Alan Doyle is my Stage Manager and we have been friends for years, he has done a lot of big tours and he comes with knowledge on how to stage-manage big shows so we started...
discussing how we were going to build this crew. His assistant, Tim Kitchens, is our touring electrician. Cat Entertainment Services is subletting us some generators but it’s not like we have a power team out here. Tim has done a fantastic job!”

Doyle has also worked with the singer for a few years and relishes the size and scale of Prismatic. He told TPi: “We’re using pretty much every gag known to man. It’s a very busy show, so it’s been quite a challenge but it’s just common sense, that’s what it comes down to. We are doing pretty well with all of it at the moment, even though it’s in its early stages.

“You just have to make it happen, especially with the size and the scale we have here. A big part of the set is the moving triangle stage and the moving video wall, those kinds of pieces take up a lot of space, so we need a lot of trucks!” concluded Doyle.

TRUSTED VENDORS

Vendors for Prismatic include PRG Nocturne for video, Upstaging and Neg Earth for Lighting, Clair Global for audio, TAIT for staging and automation duties, Quantum Special Effects for pyrotechnics, ER Productions on lasers, Beat The Street and Transam for transport, Mojo Barriers, and Eat Your Hearts Out providing catering.

For Schmit, there is also huge emphasis on the importance of freighting. His supplier of choice, Soundmoves, has people on the ground in both the US and the UK, ensuring a smooth transition is felt. Said Schmit: “Martin Corr is my guy in the UK and Justin Carbone in the US; as a production manager, those guys are like my two best friends because a production manager has to put trust and faith in freight, if freight doesn’t make it or isn’t safe, there are very real consequences. I really trust their decision making. The added value is that they are very competitive price wise, and the value in their services and the abilities they offer, is to me personally - bar none - the best. I can’t really live up to my potential without them.”

Once the production equipment arrived in the UK safely, a portion of rehearsals were done in Belfast, and started with the band and the choreography in February. In March the production went into the Sports Arena in LA. Once all the production components were made, they could be shipped to the UK for full technical and dress rehearsals.

Schmit continued: “Katy’s Creative Designer, Baz Halpin, has been around her for the last three or four years. He is very pragmatic and adaptable to limitations, and then Nick Florez and RJ Durell are her choreographers, but they also have a big hand in the creative side. Baz and Katy spend an immense amount of time together going through the creative aspects of the show and Nick and Jay help bring that creative bit to life but Katy drives it all.

“Part of the show is called ‘catoure’ which is all about her cats, because she is a cat person! It’s all about cats and fashion, that’s who Katy is. Sometimes the most prominent part is her wardrobe; it’s very stylish.

“This show is unique and very ambitious. There is a hyper neon section of the show, which is all about her Teenage Dream phase. She is not just up there doing her hits though, she is doing a very dedicated performance that has props and animation; when you turn the lights on, it becomes her village of fun!”

Indeed, Perry’s dedication to her live shows and her fans has been noted on the tour. “Out of all the artists I have worked for, Katy definitely has a love for her fans - she knows what her fan base means to her. It’s very refreshing. There are pop artists who take that for granted, not maliciously but over time it becomes a lot to deal with, yet Katy is very sincere in what her fans have done for her. Her fans have given her this opportunity and I think that is the way she sees it, these huge tours are down to them truly supporting her, and she genuinely knows that they’ve given her this opportunity. From everything that I know about her, that’s what I see every day, and that’s very, very rare.”

CREATIVE CHOREOGRAPHY

“We started with Katy in 2010 and we worked on the California Dreams tour. This one has been a fantastic leap for us,” said
Choreographer RJ Durell. “Katy was really excited to create concepts within every song of the show so there’s lots of fun things happening throughout the performance. I think it’s the best way to be for any artist because you really want the show to represent who they are and what their brand and image is, so collaborating with someone like Katy is amazing; she puts in so many ideas. I will say our pre-production meetings were so much fun, its like the more outlandish she can be the more excited everyone is. We could have planned three tours with the amount of ideas we had, and we’ve ended up here… which is pretty large scale!” he explained.

Colleague Nick Florez added: “This is literally her vision come to life; we were in a restaurant and she was sketching ideas out on her dinner napkin! She’s very hands on with the creation of every single detail.”

There is a total of 10 dancers and a massive amount of costumes. He continued: “It has been ever-evolving because of course artistically she is constantly getting new inspiration so it has been a fun but wild process. It is the most fun we have had on tour and I have loved all the work we have done. We get to do aerial and ground choreography and Katy’s really fun too because her songs and her visual content is so diverse that it keeps it very exciting for us.”

Durell concluded: “This is the hardest tour as far as what Katy is putting herself through physically and emotionally; the bar has been raised all around on this tour. She is very appreciative of her audience and one of her main questions was “how close can I get to the fans?” and that’s why our runways are huge.”

**FOH AUDIO**

FOH Engineer Pete Keppler is in his fifth year as Katy Perry’s touring sound engineer. Keppler has also specified the tour’s PA system, from sound supplier, Clair Global. For his needs at FOH, the experienced mixer is a fan of the ever popular combination of DiGiCo consoles and Sennheiser and DPA microphones: He told TPi: “I started using DiGiCo about two years ago and I absolutely love the way these desks sound. I’ve used Waves plug-ins for years, so when DiGiCo put out the SDS desk, the combination of it and the Waves server and MultiRack system worked out really well. Manny [on monitors] and myself decided we would both use this console, and the real beauty is that we don’t need a splitter anymore; all of our inputs go directly into an Optocore fibre system, and we can distribute audio anywhere we need to in the system”.

While I use a fair amount of the Waves plug-ins, I really like what SDS has to offer as well. I use the onboard dynamic EQ for Katy’s vocal, the Digitube - a tube emulator which gives me some saturation on various inputs, and I use the onboard graphic EQs on vocals: when Katy comes down to the B stage, I switch the graphics in. When she gets out in front of the rig, things change. Any mic will respond a bit differently when it’s 110 ft in front of the PA.”

For the singer’s vocal equipment, Keppler has chosen an MD5235 Sennheiser capsule on an SMS200 Series transmitter. “Katy, and our backing vocalists Cherie and Elle all use the S235. It sounds great. DPA has also worked it’s way in to the mix. The stage set-up on this tour dictates that we can’t use overhead mics on drums, so we chose the DPA 4099 as close mics under the individual cymbals. That position is a real test for a microphone, and the 4099 really came through.”

**MONITORS**

Monitor Engineer Manny Barajas has been with Katy Perry’s live production since November 2010, meaning he first came on the road with the star for her California Dreams tour. Like Keppler at FOH, Barajas also chose a DiGiCo desk. “We both chose the SDS because we knew we wanted to go with DiGiCo. We first thought of the SD10 but as our input list grew bigger and bigger, the SDS seemed to be the best choice. We both liked the single engine and the multiple screens.

“We use Sennheiser SKM5200-II transmitters with MD5235 capsules and EM3732-II receivers. For in-ears, we have the Sennheiser 2000’s with Jerry Harvey molds. A combination of JH7’s and JH13’s for the band. On Katy, I am using the JHFRs to be exact. They’re the new model that feature an ambient port with a full response sound.

“For Katy, everything has to match the wardrobe and the look of the show. The fun bit is that there is a specific microphone to match the different looks of this show, so all the Sennheiser’s are customised by our art team.”

Below: PRG Nocturne supplied the video needs for the tour, with its own V9 Classic and V9 Lite video screens.
Below: A Prism structure was used as a centre stage prop to reflect the album’s title.

department. They’ve added lots of cool thing like sequins; they call it ‘bedazzling’. The microphones not only sound great, but now they match a lot of the set and wardrobe because if you look closely at a lot of the props they have jewels on them.

“It’s a very fun show to work on, but I do have a lot of people to look after, so it’s is a full plate in monitor world,” added Barajas. “For us, the biggest challenge is winning the RF war. Everything needs to be wireless and the number of UHF frequencies we have to deal with is around 70, but with the help of Niall Selvin, our RF tech, we are winning that war everyday.”

Barajas also had a great tip: rechargeable batteries! “I went to my production manager and told him that we need over 200 batteries a night to run this show, he was quite surprised and told me to find a better solution. A friend then told us about Fisher Amp chargers. I’ve worked out that in a few months the rechargeable battery system will have paid for itself, and as we’re on the road for almost two years, our tour accountant loves that; now we’ll never run out of batteries and stop any unnecessary waste.

RF
Niall Slevin, RF Technician for Prismatic has freelanced for sound supplier Clair for some years. Although the in-ear monitors were specified by Monitor Engineer Barajas, Slevin agreed that Sennheiser equipment was the right choice. He said: “I would have chosen them; the microphones have a large RF range so you can go into different venues and find frequencies. The Sennheiser 2000 Series have a very strong sound in the air and they have been tried and tested for so many years that it makes them very reliable for a tour of this scale.”

The Sennheiser 2000 Series works in conjunction with the comms, which are used for on-stage management communications, such as the safe operation of the built-in stage lifts. Continued Slevin: “They are separate from the audio and the performers, but are integrated into the show and how it runs. They are two independent communication systems, one does the stage management operations and the Sennheiser gear does the in-ears and microphones, for audience communication.

“With RF ranges getting squeezed all
Below: Production trucks were supplied by Transam, which provided an incredible 30 trailers for production logistics; Sennheiser microphones were customised for the singer to ensure they matched each act during the vibrant show; Eat Your Hearts Out cooked for the entire tour after a successful previous run with the California Dreams tour. Menu options included tuna steak, pictured; PRG’s MBox media servers controlled the show’s video playback.

The time, technology must overcome trying to fit large amounts of RF into such a small range. It’s actually very challenging because we are bringing this system in from North America to Europe and then back to North America again, so we plan and design in advance in order to cover the territories due to the different frequency ranges.

“A lot of the designing for the RF spectrum goes on way before we even leave the warehouse, and that is becoming the normal procedure now, because space is so tight. If you analyse an environment correctly, hopefully you will have a system that lets you do what you need to create a strong RF signal, especially on a stage design this long,” concluded Slevin.

RELIABLE PA
For the PA requirements, a mixture of Clair products were chosen. FOH Engineer Keppler explained: “We used Clair on the last tour with a slightly smaller version of this PA, so I knew exactly what I wanted this time around. Clair Global is a great company and I’ve had nothing but great experiences with them.”

For the main PA, Keppler chose an i5D, it is similar in components to Clair’s smaller system, the i5, usually coupled with the iSB bass cabinet. He explained his reasoning: “Instead of having two boxes to make up the same compliment of drivers, with the i5D it is all in one box… It is much faster to rig and fly, and it sounds amazing. The audio signal is fully digital all the way from the stage to the amps, and we drive the entire PA from the matrix outputs on the SDS to feed the various zones of the PA. The side hangs are Clair’s i3’s and next to them we have a separate hang of BT-218’s which provide subwoofer compliment for the side seating.

“In today’s configuration we aren’t using a rear hang because we are flat up against the back wall, but for bigger venues we do need to implement rear fill, we use a smaller line array called the iDL.”

The nature of this tour doesn’t allow Keppler much subwoofer placement on the floor, so the majority of Prismatic’s sub generation is done in the air. “The i5D is amazing… The main PA puts 64 18-inch drivers in the air, in a cabinet that is very well-tuned, and you can really feel the sub energy all the way up into the top rows of the arena. We have some locations on the floor where we’ve added a few subs to fill in; a new box called the CP-118, which is a single 18-inch self powered subwoofer.

“We are using three of those per side, but they’re hidden in keeping with the look of the show. There are some extra BT-218s on the floor as well, a further six more of those are used in the ‘reflection section’ [the VIP area directly in front of the stage]. Katy really likes the club feel - she likes to really hear it thumping,” said Keppler.

The box count for the main PA comprises - per side - main hangs of 16 i5Ds, side hangs of 16 i3s and eight BT-218s, eight iDLs for rear hangs, three BT-218s and three CP-118’s for ground subwoofers and for front fill, four P2 loudspeakers.

Ben Rothstein, System Tech, for Clair Global told TPi: “The PA we have is what Pete wanted and what he felt was the best PA application for this tour, given the nature of the music and the various size of the venues. It’s a rather large arena system and we knew what we had to achieve with it; getting a really clear, loud sound everywhere in the venue.

“We were given drawings of what the production looked like and the department heads and PM Jay Schmit had a meeting to figure out how to piece everything together and where to put certain things, especially how the subwoofers and front fills were going to fit on the stage.

“As far as the speakers go, we just found a way of making the puzzle fit together and so far I’d like to think it’s working pretty well! My main responsibility is to actually make sure that everybody hears the show to its full potential. We come in every morning and we take measurements of the length and the height of the different seats in the venue because we need to point speakers at them. I try and get the speakers as high as possible, usually the higher the PA is, the easier it is to shoot down at people. We’re looking forward to some of the bigger venues that we can use this system in.”

The Birmingham LG Arena TPi visited threw a few challenges up for Rothstein, especially since his preference is for a high positioned PA. “The ceiling is about 40ft lower than what we would
ideally like it to be today. It’s always a back and forth battle because you want everyone to be able to see everything in the show, but we also have the responsibility to give people the best sound quality possible,” he said.

“We use Lab.gruppen PLM 20000Q amplifiers which have the Superior Lake processing built into them. We are currently using version 6.2 of Lake’s Controller Software which is working out really well for us. We’re also using LM44’s for processing. We use one channel as processing for the CP-118’s because they are self-powered. I have a module inserted so that I can delay and time align it to the rest of the system. The other LM44’s are used as backups for EQ when we do big festivals.”

LIGHTING OPERATION
Firmly planted at FOH is Kathy Beer, Prismatic’s Lighting Director. Beer has previously worked with the world-renowned Halpin, so knew his strong reputation when she came into his creative design for this tour.

Beer has been the LD since the tour went into rehearsals, with Programmer Eric Marchwinski at the helm of the complicated software set up. Beer makes sure everything is working and operating during show time each night and is able to manually change things throughout Perry’s performance from her MA Lighting grandMA2 desk. Beer said of the grandMA2: “I love the console. It’s a very powerful console with great networking capabilities and wonderful flexibility.”

PROGRAMMING
TPi was lucky enough to catch up with Lighting Programmer, Eric Marchwinski in Birmingham, on his whirlwind trip to the UK. As the creative choreography is a massive part of this theatrical style production, Marchwinski explained the importance of dance and choreography tracking and the approach he used while creating the show cues: “Baz’s approach to such a visual spectacle is to isolate the action, and draw the audience’s attention to where the story is taking place. This requires some very tedious programming to tightly track the choreography around the stage. The technical challenge is that all of the lights are on trusses hung at 45 degree angles. When the lights are hung in this way, you can’t just cross fade from one position to another; you have to shape the path of the move by offsetting individual timing for pan and tilt; that was a major challenge.”

Marchwinski and Earlybird Visual built an MA3D file for the show in order to allow for some offline programming, as well as facilitate the use of some very powerful positional features within the console: “MA Lighting has a great feature that allows you to control the lights using XYZ coordinates as opposed to pan and tilt,” he said. “This also allowed us to utilise a brand new protocol called Posi Stage Net which was developed by MA Lighting with VyV, a media server company in Canada. We are the first tour to have TAIT’s Navigator system speaking over PSN to the console, and we use this method of real time tracking at many points in the show.

“TAIT and Navigator are very good at networking and cross talk required a stable backbone. In total there are five independent networks in use over a single ring fiber network.” Control Freak Systems helped in specifying this system which Upstaging provided and executed perfectly.

Programming is a great balance of technical skill and artistry, especially with a designer like Halpin, whose vision allowed Marchwinski a lot of artistic freedom. Working with Halpin has helped Marchwinski appreciate and expand what it takes to make the show design the best it can be. “If you’re going to cut 20 lights from the rig so that it allows the 3D gag to work, you’re ok with that since it is for the benefit of the show as a whole, it’s not all about the lights, all the time.” he said.

In addition to programming the lighting, Marchwinski was responsible for the video playback as well. “We chose PRG’s Mbox due to its stability and great content management tools. For our video visualiser, we used a ‘Freakulizer’ system which takes live inputs from the MBoxes. This allowed us to look at how the wall moves would appear before we had the final product. To further the integration, we had TAIT sending us real time data for the large moving elements, which would in turn move these elements in both the lighting and video visualisers in real time.” he commented.

JT Rooney was the Implementation Director. In terms of technical equipment for the lighting
PRODUCTION PROFILE: Katy Perry

Below: ER Productions’ Laser Tech, Alex Oita; The Clair PA system, chosen by FOH Engineer, Pete Keppler who cited: “Clair Global is a great company and I’ve had nothing but great experiences with them.”; Katy Perry’s fun and excitable tour included giant props for her Kitty Purry alter ego.

design, Marchwinski said that although the fixtures in use were mainly to Halpin’s specification, the console was his choice: “I chose the grandMA2, there’s no other desk that could have stepped up to this challenge in my opinion. We have two consoles and five NPUs and we’re driving around 24,000 active channels of DMX across over 48 universes. The MA2 is fantastic; it’s second to none in terms of data management and how it can organise this much information. The MA’s versatility is amazing, as proven by all of the control we have from one location. The MA2 is not just a lighting desk, its a show control console.”

THE LIGHTING RIG

The rigging vendor for Prismatic in the US is Upstaging, with Neg Earth supplying the UK and European legs of the tour. Julian Lavander of Neg Earth commented: “This tour is a joint venture between Upstaging in the US and Neg Earth in the UK and Europe. The lighting crew is made up of four American and five UK lighting staff. Our two companies work very closely together and share the same ethos for quality and attention to detail to ensure a seamless transition from the US into Europe.”

The fixtures chosen are made up 64 Martin by Harman Viper Air FX, 91 Philips Vari-Lite VL3500 Wash FX, three Philips Vari-Lite 3015 Spots, 20 Philips Vari-Lite VL3515’s, 39 GLP X4’s, 62 Clay Paky Sharpys, 36 Clay Paky Sharpy Washes, 27 Solaris Flares, 80 Chroma Q ColorBlock 2 and about 600 channels of custom LED Lightbox by TAIT, which goes around the edge of the stage deck and various LED within set elements.

Continued Marchwinski: “The Martin Viper Air FX is a profile fixture with a beam lens on it, which I’ve been really happy with. Baz and I used them back on Britney Spears in Las Vegas this past winter. They have a lot of punch, are lightweight, and have a high output. The gobo selection is even more versatile than the regular Viper Profile, with very fast optics. We get lots of mileage from them.”

“The GLP X4’s do all of our dancer’s sidelight. They are lining the offstage and downstage edges of the stage. Up in the air, there is a Viper and a Sharp Wash hung in the large 45 degree rake trusses, with CB2s scattered throughout. The Sharp Washes have a very high output and fast colour mixing. They’re becoming more present in many lighting rigs because they’re such a great fixture.

“The Philips Vari-Lite VL3500’s are on the two large triangle trusses. They light the entire runway, front light and back lighting, as well as lots of audience and aerial effects. The VL3500 has been a staple fixture of the industry for years, and it was a great choice for its use in this show. This rig was designed very well, and fixture placement was very well thought out. We’ve definitely pushed it to do some great stuff and been able to come up with unique ideas and unique looks for each song.”
"The amount of gear and technology surpasses what we could do in a stadium because in a stadium show you are limited by the fact you’re outdoors and therefore open to bad weather. The crew has been fantastic, both from Upstaging and Neg. Kudos to crew chief John Chiado and the team for keeping this 450 head monster working perfectly every day,” he concluded.

VIDEO

Katy Perry is a fairly new client for video supplier, PRG Nocturne but the rental house was gunning to work with the singer long term, as Mark O’Herlihy - PRG Nocturne’s Account Director for Katy Perry - explained: “We did her shows at the Roundhouse in London when she was playing the iTunes Festival last year and it was the first time we’d used our V9 screens and made a reverse triangle. We hoped that’s where we could put things in motion for getting on the tour.”

And it worked out just so, with the company doing the full world tour between its UK and US operations. The V9 screens are a central focal point throughout the entire production and are a vital look for both the show design and the visual content platform. The success of PRG Nocturne winning the contract perhaps lay with its own proprietary screens and bespoke fly pack camera systems.

O’Herlihy continued: “We utilised our V9Lite (9mm) for the three pyramid shapes, its light weight, flies out fast and delivers a stunning image. We also incorporated the V9 Classic which is a 48 by 12 pixel strip which was built into elements of the set design. The show opener has Katy Perry appearing from a pyramid feature those triangles are also made up of our V9 Classic.

“The PRG Nocturne camera system is made up of five Grass Valley HD DK 6000’s and a couple of Panasonic AW-HE120’s Robo cams. There’s are a couple of long lenses which are staggered at FOH, the rest are handheld,” stated O’Herlihy. Content is driven by four PRG MBox media servers controlling all of the media playback. The Mbox plays a big part of the integration network in the show; PRG’s Mbox Remote was used to configure output settings and the Mbox media servers were programmed from FOH and timecoded into the show for the video section.

For live video control, a Grass Valley Kayak HD system is in use. IMAG is a standard side screen package (21.5 by 11ft screens) used with four Barco FLM-HD 20k projectors.

In terms of running the live show, PRG Nocturne’s Video Engineer, Eugene McAuliffe stated: “We’ve got playback from the MBoxes coming into our system, five manned cameras and one robotic camera. Omar [Montes-Rangel, Video Director] gets to pick and choose what goes onto the screens - live content from the camera operators and then the media servers come in within the song content for the screens.”

Video Crew Chief, John Moore added: “Building the show takes a lot of patience and a lot of coordination from everyone involved; they all have to know their roles when we’re bringing the screens in. It basically boils down to knowing where to be at the right time, and knowing which piece comes next in all of the departments. On each of the triangles you have lighting, pyrotechnics, lasers, video, with carpentry putting it all together. It takes serious coordination between all of these teams; it’s like everybody playing nicely in the sandbox to make it all happen! You certainly get to know each other very well very quickly and it’s a great team out here.”

The busy tour gained further momentum with extra filming needs at one particular show. Video Director Omar Montes-Rangel commented on the challenge of filming for Billboard during the early stages of the tour: “We had five additional cameras for a live three minute shoot in Newcastle. It was televised live, so that was quite demanding for us. In general, there are certain shots that we need to get every night but I let them roll with what’s going on for everything else. We base it on the feedback from the audience and how Katy’s doing on stage so the camera positions do vary on a daily basis.”
Below: Stage Manager, Alan Doyle with Head Carpenter, Luke Larson; System Tech, Ben Rothstein of Clair Global at FOH; The audio crew with RF Tech, Niall Slevin (second from the right); Monitor Engineer, Manny Barajas in monitor world, with his DiGiCo SD5.

The video crew from PRG Nocturne is completed by Projectionist Scott Grund and Camera Operators Jack Schmidt, Jay Strasser, Will Stinson and Luis Ramos. Concluded O’Herlihy: “They’re all good crew, we have some really strong players in the video team, so this tour is in safe hands.”

Rich Rowley, Chief Sales Officer for PRG Nocturne was also onsite for the star’s Birmingham show. He added: “The UK leg is just the start of an 18-month journey with Katy Perry and we are delighted to be supporting the tour.”

VISUAL CONTENT
New York-based Lightborne created the tour’s video content. Visuals Director, Ben Nicholson stated: “Working on Katy Perry’s Prismatic tour was one of the great pleasures we have had in the past few years. Top to bottom, the production was buttoned up, professional, and super creative. Katy Perry and her team have created an environment where we could work quickly and efficiently through a mountain of content for the screens.

“For us, it started with Baz’s creative brief. Baz and the Silent House crew are really good at creating show outlines that give creative direction while also giving us room to run creatively. We’ve worked together for many other artists and have developed a pretty streamlined process. From Baz’s brief, we created custom designs for each song in the set, which then became the master document that we shared with Katy and the other creative team members. It’s a very collaborative process between, Baz, and Katy, as well as choreographers Nick Florez and RJ Durell who are also creative directors in their own right. We’ve worked hard to develop good communication and short hand, all of which helps bind a big show with complex and diverse elements together. The tour also had us collaborating with our longtime friends Geodezik, with them doing three songs for the show. This time it was our turn to be the content lead and it was great having them involved,” stated Nicholson.

The show is divided into several acts such as Prismatic, Egypt, Catoure and Hyper Neon, each with its own theme. The show shifts gears so quickly, requiring nearly every technique known to man - cinematic live action,
PRODUCTION PROFILE: Katy Perry

Below: Automation’s Robert Moore; The 3D fly gag was run by Richard Kent; The Quantum team led by SFX crew Chief, Dan Ivory-Castile; The PRG Nocturne video crew who won the tour contract after providing triangular screen designs for Perry’s iTunes Festival appearance; The Prismatic tour delivered a huge special effects display, including 1,000 gags in 90 seconds for the star’s hit single, "Firework."

cartoons, traditional motion graphics, crazy CGI - it gave the Lightborne team a chance to flex our muscles in every way possible.

"Audiences now are so used to having screens at big pop shows that it was important to the creative team to keep the audience on their toes idea and content-wise; everything was very intentional. What we strive to create is an integrated set of images that play nicely with every department," he said.

"With this kind of show, we are very conscious to have the content timings be spot on with the music and complement the choreography and the lighting. Nick and RJ created amazing art with the dancers, and the last thing we wanted was to drown it out with the giant wall of video. There are moments of the show that are stunning to me because every element on screen and stage is working in perfect time."

The design of the stage uses video (on the triangular hi-res mountain of pixels) as a giant backdrop. "One of the challenges we faced was designing and creating for such a large and hi-res surface. We used d3 Technologies Designer Software to pre-visualise content and check out our pixel maps within their fantastic simulator, as well as showing Katy how things would play in the room before we had access to the stage. This was instrumental in getting quick and early feedback," concluded Nicholson.

STAGING
TAIT supplied the scenic support for Katy Perry at the MTV Video Music Awards in August of 2013 and consequently won the touring contract. The design theme was set from the get-go. "Many of the elements required daily involvement, which she committed to early on in the process and remained steady all the way through," explained Patrick Seeley, Project Manager at TAIT.

"It’s a big show for an arena, so maintaining the logistics and flow of the in-and-outs was critical. This tour requires immense versatility, particularly in providing the rigging team with the tools necessary to re-work the 3D flying rig, 2D tracks, acrobatic single point and the curry flower, as each venue presents its own unique situation. The timeframe was also tight, with just few weeks from the time of contract to the delivery of certain elements for the rehearsals in LA. TAIT then continued to build, test, install and rehearse new elements through the setup in Belfast."

"A large part of the set piece involved the treadmill style stage, which TAIT had manufactured before, but Seeley cites Perry’s as “by far our most refined version.” It features a two-direction drive, a self-centring belt system and a support system that works with TAIT’s MagDeck system. The belt is made from monopolyester, made to specifications based on research conducted by TAIT about 18-months ago, prior to this latest version. The stage also had a clever triangular video surface in the floor that folds closed into a pyramid and then opens outward, used as Katy’s entrance and exit from the show. The set travels in an incredible 17 trucks.

In the stage itself, the physical mechanical lift designs are similar to lifts that TAIT has done in the past. Said Seeley: "The lift and flippers all work off one pump and accumulator bank and the main lift is a two stage scissor lift. For this tour, the real challenge is that the geometry is very tight. The units have a series of interlocks and feedback devices to allow the individual parts to work alone or in conjunction with each other. TAIT’s Navigator Control System monitors them for safe operation."

"The virtue of the design provides Perry with the ability to really get out into the audience," explained Seeley. "Baz’s direction to hide various effects within the stage itself, allows for spectacular moments without pulling focus during the entire show."

TAIT use both Navigator and E-Cam (by Stage Technologies) control systems. What Navigator is doing on the show is essentially taking in information from E-Cam and the MA Lighting grandMA2 lighting desk and provides position information to both, for a much greater coordination between motion and
PRODUCTION PROFILE: Katy Perry

Below: Katy Perry’s ever-hospitable Production Manager, Jay Schmit with her Manager, Steve Jensen of Direct Management; Eat Your Hearts Out cooked up a storm thanks to Head Chef, Dan Leferve and his team; The rigging crew, headed up by Lead Rigger, Chuck Melton (front right).

lighting. “This gives the lighting programmer a more efficient programming method during tech rehearsals, saving hundreds of hours and making it possible for the lighting director to adjust venue-to-venue. The flight paths change in a matter of minutes instead of hours,” said Seeley. “This tour is all about those details.”

On the road, Luke Larson Head Carpenter oversees the daily stage build. Said Larson: “There is a lot of moving parts which makes for a very long day, and a big portion of it is the automation. Even when we get the structure itself built, we then spend a lot of time making sure the parts are all working safely before the performance. Time is very much of the essence.”

The carpentry team is completed by Mike Ryder, Jimmy George, Mikey Burger, Robert Moore, Michael Peddit, Aaron Ford and PJ Smith, a group of crew members who have worked together many times, ensuring that a smooth transition is felt within the department.

AUTOMATION

With the rig safely in place, Head of Automation, Robert Moore is responsible for all the moving gear on stage. This involves everything from the initial unpacking of trucks, to setting it up and then operating and running the gags throughout the show.

Said Moore: “At the beginning of the show there is a hydraulic lift, which we call the ‘Lotus’. Katy gets underneath the stage and it gravitates up through the stage, revealing her to the crowd. There are a couple of toasters - moving platforms elevating performers either up or down or in the air - in the stage that Perry and some of the dancers will ride on whilst they are performing.”

In the air, there is a 3D fly system which two aerialists and two guitar players use. Upstage there is a tracking triangle and all the video walls move up and down the stage (as a main feature of the set design, PRG Nocturne’s video wall weighs in at 40,000lbs!) Richard Kent is the tour’s Automation Fly Supervisor for the 3D flying system. He told TPI: “Technology has moved on in automation to a lot more animation, so we actually animate things in this 3D space rather than the traditional automation side of things, so it’s slightly different learning 3D packages in terms of modeling, but it’s a new skill which enables us to achieve accuracy easily,” he said.

All of the automation is running on the TAIT’s Navigator software.

PYROTECHNICS

Quantum Special Effects Corp. has taken lead for this tour, with assistance from Quantum Special Effects Ltd for the UK leg. Dan Ivory-Castile, SFX Crew Chief is leading a team of three for this world wide pop spectacular. Quantum is also working in conjunction with ER Productions. Said Ivory-Castile: “Our American counterpart has merged with ER’s for this tour, but are still separate companies; we’re hoping to provide a more comprehensive service globally by joining forces”.

Ivy-Castile is joined by Michael Morey and Ian McDonald and ER Productions has sent Alex Oita on the road as the Prismatic Laser Tech. Ivory-Castile explained some of the show’s special effects: “For the opening of the show we have 10 Co2 jets, they pack a good punch right at the start of the show. I control the pyro from a wireless system at the side of the stage, or wherever I need to be able to see it from. Our confetti blowers are fired manually, and Co2 jets and low fog gags are all programmed via DMX on a ChamSys MQ70 desk. The pyro we initiate on Galaxis and is absolutely perfect for what we do.”

There is an array of special effects throughout the show. These include low fog from LSG’s with floor pockets that pop up - so there is no need for ducting on stage - adding to the edgy mood of song Walking on Air. Later in the show there are two flying guitarists which have pyrotechnics coming out of their guitars, all fired wirelessly for an explosive mid air moment!

Quantum then crank up the heat with eight G-Flames for the classic Perry hit I Kissed A Girl positioned upstage left and right of the prop lift, punching in at the guitar solo. Six confetti blowers fire custom music note and star shaped confetti for the penultimate song, Birthday filling the entire venue, ensuring everyone is feeling in the party mood before the night is over.

Yet the biggest effect for the pyrotechnics crew is the finale, Firework. The ending is certainly not for the faint-hearted; it entails the use of custom prism glasses and a few double glances! For this number, Quantum has enlisted
almost 1,000 products going off in roughly 90 seconds. Rigged from 13 points across the whole of the stage, Perry is framed in an explosive blow of colour, coordinating with her vibrant costume change for the song.

Quantum has been providing effects for the singers’ performances since her *California Dreams* tour in 2011. With performances including the Singapore Grand Prix, Dubai World Parachute Championships and more recently Quantum have joined Perry for her headlining show at the Hollywood Bowl, Capital’s Jingle Bell Ball as well as two *X Factor* performances.

**LASERS**

Having also supplied many of Katy Perry’s TV performances in Europe over the years, ER Productions was successful in bidding for the laser supplier position. ER Productions’ Managing Director, Ryan Hagan said: “We are very proud to be part of this tour especially with the system we have put in place. Laser effects are no longer just seen to go overhead. Our technology has improved vastly and we are able to expose the audience with laser effects like never before.”

In total, ER Productions is using 15 21W RGB lasers. He continued: “These lasers are somewhat special as they use a lot of red. In many laser projectors, the total wattage is bumped up by using more green but this doesn’t help with the colour balance of the laser. The laser looks were always going to be very colourful so it was very important to use high-powered balanced systems to get the best effect.

“Having worked with Baz on many other projects and Katy’s performance at the EMA’s it was clear from the beginning that the internal DMX diffraction grating options were going to be required. These effects are very important to the show. They highlight the Prism effect of light splitting white into RGB beams.”

These effects are also easily metered and ER Productions was able to expose audiences with safe levels of laser looks adding extra effect for the show. “We worked very hard on making sure that each look required had all of the safety mechanisms needed in place, so it was passed at each venue the tour went into on its UK leg,” added Hagan.

The set is triangular in form and the lasers positions mapped the outer edge of this creating the largest triangle of all. The lasers upstage were on the lighting shelves of the tracking video screen. ER Productions designed a system that one tech could tour, keeping cost to a minimum, but always achieving the results wanted.

Laser Tech, Alex Oita added: “All the departments are working together to make sure everything is matched perfectly; it all blends in very nicely, especially the most important laser song which is the set finale, *Firework*. This is the ‘Prism Vision’ moment of the tour. Where you can use 3D glasses, especially for this special effect. I think it’s a very impressive tour. There are a lot of things happening on the stage at any given time.”

Each laser has independent control, so ER Productions has provided Pangolin.net software to operate the lasers. Hagan continued: “We connected one of our 10 Pangolin racks with a four-way version, which then utilised two of our own ER E-STOP interfaces. This allowed us to use just the one E-Stop button at FOH for complete shutdown of the rig.”

The B stage gave a perfect surface for terminating all of the high laser positions. “With effects coming down as well as up, we were able to keep the triangular form with all the laser looks. Time-coded for perfection, the lasers accompanied Katy’s performance during three songs: *This Moment, Love Me* and *Firework*. Additionally, six Look Solutions Viperdelux smoke machines were utilised to create the show’s atmospherics. “These are great for touring; it’s a smoke machine and fan all in the one unit. It’s little things like this that help your guys load-in more efficiently so that they can spend more time on the show,” he concluded.

**RIGGING**

Due to the ever-increasing weights of touring productions, the production team behind Prismatic made a request to Load Cell Rental to provide a weight monitoring service for the duration of the tour’s rehearsal time in Belfast.

Colin Luke from Load Cell Rental attended and provided an installation service on all points of the show. During the rehearsal period, any changes to the rig and the resulting changes in weight on those points could be analysed to ensure that safe working loads were not exceeded.

This meant at the end of the rehearsal period, all final weights could be documented meaning the accuracy of the weights are credible due to the fully documented calibration and servicing regime for every load cell owned by Load Cell Rental.

Load Cell Rental also offers a weight report service which effectively removes the responsibility for ascertaining the show weights from both production and the artist. Load Cell Rental technicians work alongside the production team on load-in, installing a cell on every point. The show is weighed in its final configuration and a detailed weight report is then completed by the Load Cell Rental staff. The cells are then removed at load-out.

Regarding safety with the utmost importance has been the backbone of this large production. Said Luke: “The weight reports can be forwarded to all future venues on the tour, and in the event of any incident, Load Cell Rental will stand alongside production to prove the accuracy of the show weights.”

Load Rigger Chuck Melton has been in the business for over 25 years and stated that this is by far the biggest show he has worked on with its 130,000lbs spread over 150 rigging points. With such a large production, you need a great team and Melton praised his, saying that he considers them to be “the best freelance riggers out there”. The rigging crew members are Ricky Biatto, Albert Pozzetti, Patrick Leonorad and Jake Harrelson.

Due to the size of the rig, the right tools need to be in place. As there is no rigging vendor as such, in the US Five Points Production Services supplied motors and in Europe lighting supplier Neg Earth has provided the rigging crew with Columbus McKinnon motors and steel truss. The pre-rig system was 50 one tonne CM Lodestars and 50 points of Roof Steel, with the main touring system comprising 110 one
tonne CM Lodestars, 0.5 tonne CM Lodestars and 130 points of Roof Steel. To help lift and organise this mammoth rig, Melton also has 24 local riggers in each city; 18 in the roof and six on the ground. “It can be challenging, but rigging is straightforward; you just have to hit the right point. However, you can try and get creative to get the most height possible,” he said.

SAFETY BARRIERS

Prismatic is touring across the UK with 75-metres of Mojo Barriers’ patented aluminium stage barrier, configured to follow the layout of the singer’s v-shaped stage which has been designed to reflect her latest album’s title, Prism. The layout, designed by Mojo Barriers’ CAD specialists in cooperation with Perry’s production team, features a secondary barrier line within the ‘v’, used to create a custom ‘golden circle’ for fans to get up close and personal to the Roar singer.

Kevin Thorborn, General Manager of Mojo Barriers UK, commented: “Complex designs such as this often mean that venues don’t have the correct kit available to match the ambitious production values of the tour. Our extensive range of straight sections, corners and gates mean we can create flexible configurations to suit the required layout, without ever compromising on the stringent health and safety standards required. Another of our barrier system’s core features is that it allows for fast and efficient set up, vital for a tour of this complexity which needs to load in and out quickly.”

CATERING

Eat Your Hearts Out worked on Perry’s California Dreams tour taking in the UK and European dates. Dan Lefevre, Head Chef, has personally been cooking for Perry since March 2011. He said: “On this tour, the scale has more than doubled; we are now catering for 200 people on show days, cooking three meals a day. We offer a balanced menu with five main courses choices including gluten free, vegetarian and vegan options across the board with a huge salad buffet and a wicked pudding selection.” No pun intended, but having sampled Eat Your Hearts Out’s passion fruit cheesecake, it’s a naughtly dessert indeed... He continued: “On this tour we have a smoothie bar which is used more than on any other tour I have done in the last 25 years! We get through a mountain of carrots, apples, beets and kale every day. We are trying to keep the food healthy, fresh and light for the tour’s dancers, band and crew. We also keep fried food to a minimum, using olive oil instead of butter wherever we can.”

Lefevre and his team had been working for 22 days straight when TPi met them at Birmingham’s LG Arena - since the production rehearsals began in Belfast. “We’re touring with 30 trucks and eight buses, squeezing this massive production into UK arenas. With a stage that spills half way across the arena floor, it is easily the biggest indoor show I have ever worked on, but I have an amazing catering team producing delicious and exciting food for the whole of Katy’s hard-working production team,” he concluded.

TRANSPORT

Beat The Street has supplied buses to Katy Perry’s tours for a few years now, watching the pop star’s shows grow in size each time. Joerg Philipp of Beat The Street said of the artist’s production: “They’re very loyal clients, they’re great people to work with too. This particular production is enormous but runs really smoothly.” Beat The Street provided two band buses and six crew buses for the UK and European legs of Prismatic. Transam supplied an incredible 30 trucks for the tour’s technical logistic duties.

Prismatic is certainly in a league of its own; a true embodiment of Katy Perry herself, from start to finish, the two-hour show draws the expectant crowds - which incidentally are as diverse as her wardrobe selection - and leaves an undeniably fun feeling in the air. It seems as though that’s exactly what Katy Perry wanted, after all, this is a full throttle production, aimed entirely at her loyal fans...

TPi