

CASE STUDY

Le Grand Théâtre de Provence, FRANCE

*510 Sine-Wave Channels
10 Nodes*

Controlled By State Automation Ethernet network



Installation By



<http://www.texen.fr>

Le Grand Théâtre de Provence

Set in the heart of Aix-en-Provence, a city full of life and always bubbling with cultural activities in the South of France welcomed a new state-of-the-art opera house in June 2007.

An ambitious architectural project to build a brand new theatre, designed by an Italian architect, Vittorio Gregotti started in 2004 and has taken few years to realize what called "an architectural challenge" due to the entire curve of the building. From the outside, the building gives the impression of "never -ending" flow of walls.

This project was a collaboration effort between the City Council, the Cultural Minister and the Organiser of Aix-en-Provence festival, one of the biggest summer festivals in the world. The intention was to build a permanent venue to receive international opera productions as part of the summer festival program.



Le Grand Théâtre de Provence's interior design reflects the spirit of an Italian opera theatre. It has beautiful rows of red seats, 3 levels of balcony curving around the main stage to allow better performance visibility. The theatre can house up to 1350 seats, 950 out of which are in stalls.

The Concept

Since day one, the idea was to **equip Le Grand Théâtre de Provence** with the most technological advanced equipment. For dimming system, sine-wave technology was a preferred choice. To assist in the decision making process and to validate the technical concept, a series of product demonstrations was set up, allowing the users to understand different types of products and their benefits.

State Automation came out as the winner above other international brands and was awarded the contract of supplying 600 sine-wave channels and 10 nodes controlled by SA Ethernet. The network at this venue was designed to run on Arnet protocol via fibre optics directly connected into State Automation cabinets and nodes to provide high and fast (100MB/S) signal transfer and instant feedback of information.



The Realisation of the Concept

The lighting system and network control have been designed by Claude Polycarpe from the internationally recognized Scene cabinet. In accordance with strict request from the users, the project was designed to match the highest standards available on the market that is Sine Wave dimming technology, Ethernet network and Optical fiber etc) to create an ideal showcase to welcome the world's most prestigious Opera production. State Automation and Texen engineering teams was involved in the earliest stage to propose different options to create a flexible and efficient lighting system.

The lighting and network systems were installed according to the Schema below. This design offers a flexible tool to be used by lighting designer and technical team while offering an incredible quality of silent dimming of Sine Wave technology for the performers and the audience.

The complete State Automation equipment includes:

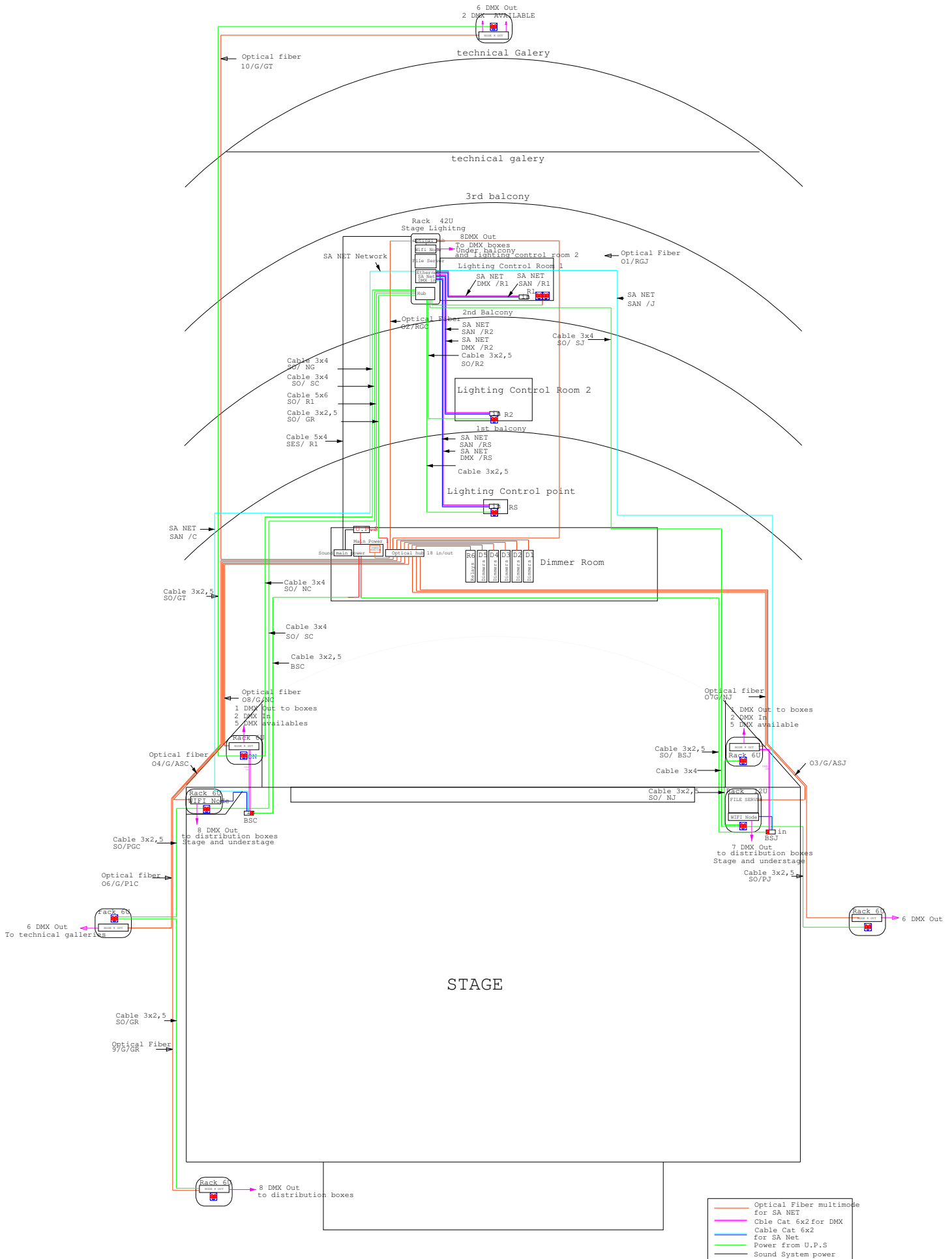
- 6 Solution 96 dimmer cabinets installed side by side in a single dimmer room.
- 2 Solution 12 dimmer cabinets for the House Light.
- 460 Sine Wave channels 3KW 16A
- 50 Sine Wave channels 5KW 25A
- 36 Relay channels 16A
- 40 Relay channels 25A
- 3 Wireless Node 8 ports
- 6 Portable Node 8 ports
- 1 Power Monitor
- 1 File Server with SA Device Manager Software.
- 1 PDA with lighting control software
- A complete optical network multi-mode to link all of these components together.

The above lighting system can run on two control protocols: SANet or Artnet to allow users maximum flexibility.



Dimmer Room View

Lighting & Network System at Le Grand Théâtre de Provence




Key Technical Data

Variable Sine Wave Dimming Technology

Dimmers employing VST technology produce essentially zero electrical noise pollution. Specifically, power factor, input harmonics and output harmonics are all dramatically reduced when compared with phase control dimmers.

VST is a new type of dimming technology, using modern insulated gate bipolar transistors (transistors) and pulse width modulation (PWM). This enables an AC input voltage to be regulated to produce a variable amplitude sinusoidal output, with virtually no change in frequency or wave-shape. Thus the term "VST", meaning "variable sinewave technology".

Key benefits

- Cost savings on installation— In larger dimmer installations the size of cabling and transformers is typically doubled to allow for higher neutral currents and increased losses in the supply transformers. VST greatly reduces the harmonic content and associated electromagnetic interference, allowing normal rated wiring and transformers to be used.
- 
- Cost savings on lamp replacement—Lamp manufacturers have proven that lamp life is decreased when dimmed with phase controlled dimmers due to work hardening of filaments. Many installations worldwide are now benefiting from the extended lamp-life offered by sinewave dimming.
 - Elimination of lamp filament sing —No more noisy lights or buzzing transformers.
 - Virtually indestructible—Trouble free dimming with both electronic overload protection and short circuit protection. These features shut down the dimmer well before any damage can be done to itself, the wiring or the load.
 - Flexible load compatible—No special setting or models are required. One dimmer dims all load types. Compatible with all lamp types, including discharge lamps (metal halide, fluorescent, mercury/sodium vapour).
 - Operates under the harshest of conditions—VST dimmers operate under harsh mains supply conditions (generators).
 - Substantially improved power factor—No need for expensive power factor correction equipment as the power factor is maintained at an acceptable level for most load types

Key Technical Data

SA^{Net} Wireless Node

SA^{Net} Wireless Node, integrated two of the latest advances in lighting technology—wireless networks and optical fibre—with a DMX encoder/decoder, all in a single compact unit

Advantages

- Wireless Technology— No more bunches of cables, just a single cable to wire your show.
- Integrated switching from optical fibre to UTP cable greatly increases system reliability.
- Stable, fast transmission.



- Features Ethernet DMX node.
- 2U standard 19" rack mounting.
- TX/RX optical fibre SC port.
- Dual RJ45 ports.
- Built-in wireless access point.
- 8-port DMX input and output.
- 25mS DMX refresh rate.
- DMX 512 Start address flexibility.
- Conforms to Ethernet 802.3-10BT and 802.11b.
- LCD displays settings and operating status.
- Optional configuration of WEB server.
- Optically isolated DMX pots (2500V).
- Built-in 40MIPS high speed network processor.
- Advanced flow control features to reduce network load.
- 8-level DMX priority settings.
- Easy to modify system configuration.
- Artnet compatible
- ACN ready

The Result

The Grand Theatre de Provence opera house opened successfully on the 26/06/07. The venue was inaugurated by the Aix-en-Provence Festival with a performance of Richard Wagner's Die Walküre.

More than 300 journalists covered this event (23 nationalities represented). The venue received an incredible welcome both from the audience and the artists. Le Grand Theatre de Provence plans to have regular program of opera and theater performances around the world.

After the usual rush of the opening the technical team has now fully taken in hand this venue and all technical aspects of the dimming system and the control network.





About State Automation

State Automation is an Australian owned international company dedicated to control the theatre lighting and automation systems.

The company story started in 1984, under the trading name of Bytecraft. Today, after 2 decades of working in the industry, we pride ourselves as an "haute couture" style company because we tailor to the needs and requirements of our individual client on project basis. "Everything is possible" is our attitude and that is what makes State Automation unique.



HEAD OFFICE

State Automation Pty Ltd
23-27 Fonceca Street
Mordialloc VIC 3195
AUSTRALIA

Tel: +61 3 9587 2555
Fax: +61 3 9580 7690
Email: info@stateautomation.com
Website: www.stateautomation.com

EUROPEAN OFFICE

State Automation Europe
19, Rue du Marais
78820, Juziers
FRANCE

Tel: +33 1 3475 6827
Fax: +33 1 3475 2157
Email: info@stateautomation.com
Website: www.stateautomation.com