Electrical Patching and Control

Last updated 07/01/26 by CHTJ

Control

LX control is by an ETC Gio@5 2048 lighting desk with an ETC Puck running as backup. Both are networked to an ETC Net3 Two-Port DMX/RDM Gateway in the Patchbay. By default, the lighting network is provided on RJ45 ports in the control box and at the auditorium LX plot desk position, but can be patched elsewhere if desired. An iPad with the ETC iRFR app can be signed out from the theatre's administration office.

The 2 DMX universes output from the Net3 Gateway are presented on a set of linked DMX splitters that are patched 1-to-1 with the outputs around the theatre. There are switches on each leg of the splitter to select universe 1 or 2 (no repatching is required). N.B. we experience control issue with the DMX splitters when DMX RDM is turned on and so request that it is left disabled on the ETC Net3 node.

The houselights are permanently installed GDS Arcsystem LED units. They are on DMX address 500 on the same leg of the DMX patch as the installed dimmers (which is usually universe 1). The auditorium aisle secondary lighting is dimmed with the houselights, but can also be controlled separately on DMX address 501 on a highest takes precedence basis. Several manual outstations for houselight control are located at auditorium entrance doors, the Stage Manager's desk, in the Patchbay and in each control box, again operating on an HTP basis with the levels received via DMX. There is an additional houselight 'panic' switch located just off USL immediately above the handle to release the safety curtain which overrides all other controls.

Working light is provided by permanently maintained blue and switchable white lights both backstage and front of house. White workers may be switched on/off based on two zones (FOH & backstage) and may be controlled from outstations in the LX control box, the Stage Manager's desk or from the stage left wing. FOH white working lights *must not* be illuminated (except in emergencies) from when the house has opened until the house has cleared. Individual blue or white workers may be isolated, but only by the Technical Manager with a suitable additional risk assessment having been made. A patchable circuit is provided for the connection of temporary blue working and emergency lights in the event that the permanently installed illumination proves insufficient or is blocked by scenery, deck or masking.

Theatrical systems are powered by one of two electrical submains, each connected to its own motor-operated circuit breaker: the lighting power submain (maximum total load 400A per phase) feeds all dimmers and lighting fixture hardpower circuits while the stage power submain (maximum total load 200A per phase) feeds everything else including the white workers, all sound & video equipment and the local sockets found around stage. Each motorised breaker can be switched as detailed from the locations below:

Scene dock (on & off controls)
LX control box (on & off controls)
Stage left wing (on controls only)

Power to sound sources and amplifiers is sequenced so that sources come on before amplifiers and amplifiers go off before sources. Control for sound power is provided at various outstations located DSL, in the Patchbay and in the sound control box.

Control for the switching of power to video equipment is automatic; the system will energise when the Stage Manager's desk is switched on.

Installed Dimming
All dimmers are Zero88 Chilli Pro 24 units permanently installed in the Patchbay.

Address 1-96:	96x 10A dimmer circuits
Address 97-116:	18x 16A dimmer circuits
Address 117-120:	4x 16A switchable hardpower circuits

All outputs are fully patchable with 2 outputs per circuit. Under no circumstances should non-dimmable loads be connected to the dimmer circuits; the 'switch' dimmer law/curve is not a relay and should only be used to switch dimmable loads.

Temporary Power and Portable Dimming
Fed from the stage power submain (total load not to exceed 200A per phase):

- 1x 32A 1Ø upstage
- 1x 63A 1Ø upstage
- 1x 63A 1Ø upstage left
- 1x 63A 1Ø downstage right
- 1x 63A 1Ø upstage on counterweight fly floor
- 1x 63A 1Ø in orchestra pit
- 1x 63A 3Ø in scene dock below stage

Fed from the lighting power submain (total load not to exceed 400A per phase):

- 1x 32A 1Ø downstage on counterweight fly floor (intended for strobe power)
- 3x 63A 1Ø in Patchbay (intended for temporary dimmers or hardpower distro)

Up to 6x portable 6 channel dimmers may be available with 63A 1Ø inputs, as well as other temporary power distribution – please discuss with the Technical Manager before your show's get-in. Note that all single-phase 32A & 63A sockets are directly protected by their own 30mA RCD for the direct connection of dimmers and similar final distribution. The three-phase 63A socket is protected by a 4-pole 300mA S-type RCD and *must* be used with further distribution protected by a 30mA RCD if used for dimmers, sockets or other final circuits. Use of this socket in particular *must* be discussed in advanced with the Technical Manager.

Patch
Patchable dimmer and hardpower circuits terminate at a powerCON panel in the Patchbay. Additional non-patchable hardpower circuits are provided at facilities panels as detailed below. All hardpower circuits are rated at 10A maximum, protected by C-curve 30mA residual current breakers with overcurrent protection (RCBOs) and are fitted with NTC thermistor-based current limiting to mitigate surges when large banks of fixtures are first switched on. Please contact the Technical Manager if you require any additional information.

Outputs
120 dimmer channels/switch circuits as described above (2 powerCON socket outlets each)
12 patchable LX hardpower circuits as described above (4 powerCON socket outlets each)
20 hardwired non-patchable LX hardpower circuits available as follows:

- 4x circuits DS on counterweight gallery (1 powerCON socket outlet each)
- 2x circuits MS on counterweight gallery (1 powerCON socket outlet each)
- 2x circuits US on counterweight gallery (1 powerCON socket outlet each)
- 2x circuits Far US on counterweight gallery (1 powerCON socket outlet each)
- 1x circuit DS on hemps gallery (2 powerCON socket outlets)
- 1x circuit MS on hemps gallery (2 powerCON socket outlets)
- 1x circuit US on hemps gallery (2 powerCON socket outlets)
- 1x circuit for followspots (13A socket outlets SR & SL on bridge 2 and in control boxes)
- 1x circuit SR on bridge 1 (1 powerCON socket outlet)
- 1x circuit MS on bridge 1 (1 powerCON socket outlet)
- 1x circuit SR on bridge 2 (1 powerCON socket outlet)
- 1x circuit MS on bridge 2 (1 powerCON socket outlet)

1x circuit SL perch and proscenium arch (1 powerCON socket outlet each)
1x circuit SR perch and proscenium arch (1 powerCON socket outlet each)

Additional patchable non-lighting power circuits for sound sources, sound amplifiers, video power, temporary blue workers, temporary emergency lights and general stage power are also available (4 powerCON socket outlets for each circuit).

FOH Circuits (66 circuits total)
Bridge 1 (12 circuits)
Bridge 2 (12 circuits)
Rear of Auditorium Bar (4 circuits)
Orchestra Pit (4 circuits)
Ladders (6 circuits each side)
Perches (6 circuits each side)
Houselight bars (3 circuits each side)
Juliettes (1 circuit each side)
Control Boxes (1 circuit each box)

Stage Circuits (124 circuits total)
Counterweights (72 circuits – 4 boxes of 3 Socapex connectors each)
Hemps (18 circuits – 3 boxes of 1 Socapex connector each)
Dip Traps (18 circuits)
Pros Booms (8 circuits each side)

For overstage bars there are a variety of Socapex cables, breakouts, breakins and 12x 6-way mini-IWBs which can be attached to counterweight bars as required.