CD80 Supervisor System Configuration

- Plug-in modular digital dimming system for mid to high specification applications
- Up to 96 2.4kW or 48 6kW dimmers per rack
- Standard, high and very high choke filter rise times
- Hard firing thyristor option to run transformer, cold cathode and low wattage loads
- Contactor module options to switch motors, HMI ballasts and other non-dimmable equipment
- System wide configuration and load reporting with Strand 430 or 530 consoles or PC using the Reporter™ Windows™ based software program
- All power modules available in standard format or with Reporter™ load status reporting
- Dual electronics processor option for full redundant tracking backup
- Extensive security features for top grade “live” installations
- “Panic” function, to bring selected dimmers to full if processor fails, and can be actuated manually or automatically (eg, by a fire alarm system)
- Line voltage regulation to minimise light output changes when the input voltage fluctuates
- Extensive input control capabilities, ensuring system design flexibility and ability for future system additions and upgrades
- Optoisolated Mux A and Mux B inputs provided as standard with individual patches
- Up to 32 analog +/- 10V inputs per rack patchable to any dimmer circuit(s)
- 99 System Wide Control (SWC™) memories for additional preset and backup use, using simple “snapshot” recording
- 16 room (zone) by 8 preset Outlook™ architectural lighting presets for auditorium, front of house and other control
- Direct control of channels and presets by hand held remote programmer with specialised riggers functions
- Built-in library of fixed and custom dimmer curves, accessible per dimmer
- Smooth 16 bit digital fade processing
**Racks**

**General**
- Two sizes: 48 and 24 modules
- Both sizes either bottom or back bussed
- Any module may be positioned in any slot at manufacture
- Over temperature warning on rack, remote console or PC
- Over temperature warning forces cooling fans on at full
- Over temperature shut down at 5 degrees C above warning level
- UL listed for USA and cUL listed for Canada

**Mechanical**
- Racks designed for adjacent mounting
- Racks can be bolted to floor
- Racks are supplied with locking door as standard
- Module removal without use of a tool
- Max ambient temperature 40 degrees C
- Convection cooled with fan assisted
- Three low noise fans
- Variable or continuous fan speed control for minimum acoustic noise

**Electrical**
- Rack power input
  - 120V 3 phase, 4-wire+ground
  - 120V 1 phase, 3-wire+ground
  - 220V 3 phase, 4-wire+ground
  - 220V 1 phase, 2-wire+ground
  - 800 A per phase maximum
  - 50Hz / 60Hz
- Bussing allowed across adjacent racks
- Standard load wire terminal size at 6 gauge with optional adaptor up to # 2 gauge
- Fault current protection to 10,000 AIC
- Provision for amp trap devices
- Dimmers do not draw or supply DC supply current.

**Control logic**
- All or individual dimmers may be programmed to conform to a selection of control logic rules - please refer to figure.

**Rack Dimensions and Weights**

<table>
<thead>
<tr>
<th></th>
<th>48 module rack</th>
<th>24 module rack</th>
</tr>
</thead>
<tbody>
<tr>
<td>height</td>
<td>80&quot; (2.032mm)</td>
<td>57&quot; (1.448mm)</td>
</tr>
<tr>
<td>width</td>
<td>24.5&quot; (622mm)</td>
<td>24.5&quot; (622mm)</td>
</tr>
<tr>
<td>depth</td>
<td>19.5&quot; (495mm)</td>
<td>19.5&quot; (495mm)</td>
</tr>
<tr>
<td>weight (full)</td>
<td>1183lb (538kg)</td>
<td>700lb (318kg)</td>
</tr>
<tr>
<td>weight (empty)</td>
<td>400lb (183kg)</td>
<td>300lb (136kg)</td>
</tr>
</tbody>
</table>

**120V Power Modules**

<table>
<thead>
<tr>
<th>Power</th>
<th>Firing Type</th>
<th>Rise Time</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dual 2.4 kW</td>
<td>Fm</td>
<td>350 µs</td>
<td>2 x 20 A</td>
</tr>
<tr>
<td>Dual 2.4 kW</td>
<td>Fm</td>
<td>500 µs</td>
<td>2 x 20 A</td>
</tr>
<tr>
<td>Dual 2.4 kW</td>
<td>Fm</td>
<td>800 µs</td>
<td>2 x 20 A</td>
</tr>
<tr>
<td>Dual 2.4 kW</td>
<td>Har</td>
<td>350 µs</td>
<td>2 x 20 A</td>
</tr>
<tr>
<td>6 kW</td>
<td>Fm</td>
<td>350 µs</td>
<td>20 A</td>
</tr>
<tr>
<td>6 kW</td>
<td>Fm</td>
<td>500 µs</td>
<td>50 A</td>
</tr>
<tr>
<td>6 kW</td>
<td>Fm</td>
<td>800 µs</td>
<td>50 A</td>
</tr>
<tr>
<td>12 kW</td>
<td>Fm</td>
<td>350 µs</td>
<td>100 A</td>
</tr>
<tr>
<td>Dual 2.4 kW</td>
<td>Fm/Non-Dim</td>
<td>350 µs</td>
<td>2 x 20 A</td>
</tr>
<tr>
<td>Dual 2.4 kW</td>
<td>Non-Dim/Fm</td>
<td>350 µs</td>
<td>2 x 20 A</td>
</tr>
<tr>
<td>Dual 2.4 kW</td>
<td>Non-Dim/Non-Dim</td>
<td>350 µs</td>
<td>2 x 20 A</td>
</tr>
</tbody>
</table>

**220V Power Modules**

<table>
<thead>
<tr>
<th>Power</th>
<th>Firing Type</th>
<th>Rise Time</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dual 3.3kW</td>
<td>Fm</td>
<td>190 µs</td>
<td>2 x 15 A</td>
</tr>
<tr>
<td>Dual 3.3kW</td>
<td>Fm</td>
<td>435 µs</td>
<td>2 x 15 A</td>
</tr>
<tr>
<td>Dual 3.3kW</td>
<td>Har</td>
<td>190 µs</td>
<td>2 x 15 A</td>
</tr>
<tr>
<td>Dual 5.5 kW</td>
<td>Fm</td>
<td>190 µs</td>
<td>2 x 25 A</td>
</tr>
<tr>
<td>5.5 kW</td>
<td>Fm</td>
<td>435 µs</td>
<td>25 A</td>
</tr>
<tr>
<td>11 kW</td>
<td>Fm</td>
<td>190 µs</td>
<td>50 A</td>
</tr>
<tr>
<td>Dual 4.4 kW</td>
<td>Fm/Non-Dim</td>
<td>190 µs</td>
<td>2 x 20 A</td>
</tr>
<tr>
<td>Dual 4.4 kW</td>
<td>Non-Dim/Fm</td>
<td>190 µs</td>
<td>2 x 20 A</td>
</tr>
<tr>
<td>Dual 4.4 kW</td>
<td>Non-Dim/Non-Dim</td>
<td>190 µs</td>
<td>2 x 20 A</td>
</tr>
</tbody>
</table>

**Control Outputs**
- 96 or 48 dimmer control signals
- 2 analog +/-0 V output signals (96 dimmer and dual electronics processors only)
- Variable or continuous fan speed control to minimise acoustic noise

**Electrical**
- Signal wire termination at one easily accessible point
- Signal wire termination on two-part plug-in connectors
- Loop-out connectors for daisy chaining signals between racks
- Status LEDs
  - 5V opto isolation power ok
  - Auxiliary power supply ok
  - PANIC active
  - Rack overheat

**Power Modules - General**
- Dimmer and Non-Dim modules may be of Standard or Reporter types
- Capable of “hot patching” cold incandescent loads up to full rated capacity at full ON
- Dimmer power efficiency at least 97% at full load
- No-load loss of 3V RMS for standard 2.4kW dimmers
- Modules keyed so that modules of wrong capacity cannot be inserted
- Circuit breakers fully magnetic with 10,000 AIC surge rating
- Circuit breakers rated for 100% switching duty applications
- Circuit breakers are UL and cUL recognised devices
- SSR encapsulated in epoxy filled high impact plastic case
- SSR optically isolated between AC and control lines to 2.500 V RMS

**Control Electronics Specification**
- All control electronics on one plug-in module
- Completely digital with no analog ramp
- Real time date and time clock for status log reporting
- 6 button keypad to program all rack functions on processor module
- 2 line by 8 character back lit LCD display on processor module
- 6 status LEDs on processor module
  - Mux input A ok
  - Mux input B ok
  - Electronics power ok
  - Processor self test ok
  - Dimmer module error
  - Active processor (dual processor systems)
- Languages
  - English
  - Spanish
  - French
  - German
- Connector on rack front for configuration, control and Operating
  - Software upgrades
- Local switch for single rack PANIC function

**Control Inputs**
- Dimmer control
  - Mux A: DMX512 or AMX192 or D54 or SWX
  - Mux B: DMX512 or SWX
  - Analog: 32 inputs, +/-10 V (96 dimmer processor and dual electronics processors)
  - 16 inputs, +/-10 V (48 dimmer processor)

- Remote control (system wide)
  - SWCTM for remote preset panels and hand held programmer unit
  - OutlookTM for integrated architectural control
  - Reporter™ for remote configuration and status reporting from Strand 430/530 console or PC
  - Local control (per rack)
    - Rack processor keypad and LCD display for full functionality
    - Switch for rack PANIC control
    - RS232 port for local PC control
    - Rack configuration using the Reporter PC program
    - Rack preset recording and playback
    - Library and backup rack set-up storage on PC
    - Operating software upgrades

- External switch contacts
  - Select main or backup processor (dual processor systems)
  - Select Mux A or Mux B (with appropriate control logic mode)
  - Enable or disable PANIC
  - SWC preset 1 GO
  - Next SWC preset GO

**Miscellaneous Power Modules**

<table>
<thead>
<tr>
<th>Type</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blank</td>
<td>-</td>
</tr>
<tr>
<td>Constant</td>
<td>2 x 20 A</td>
</tr>
</tbody>
</table>

Note: Blank modules must be used wherever dimmer modules are not installed to maintain adequate air flow.
Presets
- 99 user programmable SWC presets, plus preset 0 (blackout)
- Snapshot recording of SWC presets from any remote preset station, hand held programmer or Reporter Program
- Individual SWC preset crossfade time recording
- One user assignable SWC backup preset on loss of both Mux inputs
- 16 rooms (independent zones), each with 8 Outlook presets, plus on/off, per room

Control Electronics - Performance
- Fast dimmer update rate, 16 ms (60 Hz) or 20 ms (50 Hz)
- Response time to signal changes, 16 ms (60 Hz)
or 20 ms (50 Hz)
- Line regulation maintains dimmer output levels to within +/- 1V of set output within the range of the control electronics (100V to 240V nominal), providing that the set level is not higher than the power input voltage less the dimmer voltage loss.
- Automatically compensates for frequency variations 45 Hz to 62 Hz.
- Up to 8 point interpolation between DMX values to smooth console fade steps
- Line regulation acts on each individual dimmer and maintains dimmer curve parameters (set curve, max level and min level)

Control Electronics - Programmable Features
Patching
- User programmable patches for Mux A and B inputs
- User programmable rack start address with following dimmers automatically sequenced
- Free format patching - any dimmer to any Mux input and address for total flexibility
- User programmable 5-digit ID for sequential numbering of systems larger than 512 circuits
- Patch any analog 10V input to any circuit(s)
  “Room” to channel to dimmer patch for Outlook architectural control

Dimmer characteristics
- Set max output voltage, 50V to 250V in 1V steps
- Set min output level, 0 to 99%
- Override dimmer level, 0 to full
- Library curves
  - Square
  - S-curve
  - Linear power output
- User programmable curves
  - Non Dim - trigger level 0 to 99%
  - Fluorescent - electronic ballast
  - Fluorescent - magnetic ballast
  - 5 user defined curves via Reporter
- Response time
  - Fast (30 ms)
  - Normal (100 ms)
  - Slow (300 ms)
- Dimmer status reporting enabled or disabled (Reporter modules only)

Security Features
- Dual electronics
  - Redundant tracking backup using an optional second plug-in processor
  - Backup processor activated by remote switching
  - Set-up data can be transferred between main and backup processors in case of replacement of either processor

Set-up data storage
- Non-volatile storage of set-up data on removable memory pcb
- Memory pcb can be moved on exchange of processors
- Set-up data can be saved and stored using the Reporter program

Mux fail options
- Hold forever (status quo)
- User programmable “hold” period before fade to user assigned SWC backup preset

PANIC function
- Any of the 96 or 48 dimmer and 12 analog outputs (96 dimmer processor) may be user selected to go fully ON on activation of the rack PANIC switch or an external switch
- Activation is by hardware only
- Optional PANIC power supply for automatic PANIC ON upon removal of processor module

Thermal control
- All power components convection cooled with fan assist
- High capacity heat sink in each module
- 3 fans for redundancy in case of one fan failure
- Over temperature warning on rack, remote console or PC
- Over temperature warning forces cooling fans on at full
- Over temperature shut down at 5 degrees C above warning level
- PANIC operation forces cooling fans on at full

Opto-isolation
- All digital inputs are opto-isolated to 2.500V RMS
- Mux A and Mux B - DMXG12, SMX
- SWC input
- Outlook input
- Reporter input
- External switch inputs

Reporter
- The Reporter program is available to run on the Strand 430 and 530 controls systems with Lightpalette and Genius+ operating software. It will also run on an IBM compatible desktop or laptop PC.

Function
- Minimum PC
- Specification
- Preferred PC
- Specification

Processor
- Intel® 80486DX™
- Intel® 486DX2™ 66 or
- Pentium™ Processor

Memory
- 8 Mb RAM
- > 8 Mb RAM

Monitor
- VGA 640 x 480
- monochrome
- SVGA 800 x 600
- color

Operating System
- Windows™ 3.1
- Windows™ 3.1

Reporter - Configuration
- System, rack and dimmer configuration
- System define or upload
- Dimmer type / slot assignment
- Mux and analog control input patching
- Outlook room/channel/dimmer assignments
- Dimmer ID configuration
- User definable dimmer alphanumeric description
- Max voltage and min level per dimmer
- Dimmer response time
- Dimmer curve
- SWC preset recording
- Outlook preset recording

Reporter - Standard Reporting
- Dimmer type in slot (user configured)
- Dimmer level (%)
- Input line voltage per phase
- Mux A or B input failure
- Rack overheat warning
- Rack overheat shut-down

Reporter - Load Status Reporting (Reporter modules only)
- Load per dimmer (W)
- Memorised load per dimmer
- Warning if load deviates from memorised value
- No load
- Dimmer fault
- No response from dimmer
- No control of dimmer
- Excess DC voltage output
- Overheat per dimmer
- Overload current per dimmer

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