
M u l t i p l e x D i m m i n g

ETC Multiplex Dimming Technology

ETC's Multiplex dimming technology allows you to increase the number of fixtures and dimmers in your dimming system without adding dimmer modules or running additional cable. The key to Multiplexing is the Multiplexer.

The Multiplexer is installed between a Sensor dimmer module and two (or four) ETC Source Four 77 volt fixtures. It splits the output of this single dimmer into two separately controlled outputs. You can then use an ETC control console (or any other type of console equipped with an electronic patch and DMX protocol) to independently control the output of the two fixtures.

To take advantage of the benefits of ETC Multiplex dimming technology, the following elements are required:

- Source Four Fixtures with UL Listed connectors and HPL 550 watt, 77 volt lamps
- Multiplexers with UL Listed input and output connectors
- Sensor dimming equipment with CEM electronics
- Control Console with electronic patch and a minimum of one DMX512 output.

Note: Each DMX512 output can control 256 dimmers operating as 512 multiplexed channels. Systems with more than 256 dimmers must have at least two DMX512 outputs in both the rack and the console.

Below are some of the most commonly asked questions about ETC Multiplex Dimming Technology.

Question: *Can I accidentally plug a 77 volt Source Four into a 120 volt circuit?*

Answer: No. Any Source Four configured for multiplexing is supplied with a specific connector, as indicated in the UL listing for Multiplexers and Source Fours as an integrated system. The required connector cannot be mated with standard theatrical connectors.

Question: *Will the 550 watt, 77 volt HPL lamp provide the same light output in a Source Four as the 575 watt, 115 volt HPL lamp?*

Answer: Yes. The filament of the 77 volt HPL lamp has slightly increased surface area, emitting more lumens per watt than the 115 volt lamp, so equivalent lumen output and equal performance can be achieved with 25 fewer watts.

Question: *The National Electrical Code specifies that different connectors be used for different voltages. How is this handled when using Multiplex Technology?*

Answer: In compliance with the requirements of the National Electrical Code, multiplexed Source Fours and the output pigtails on the Multiplexer are equipped with grounded, 15 amp Twistlock NEMA L5-15 series connectors. This is in contrast to the 20 amp connectors supplied as standard for theatrical luminaires and dimmed outlets.

Question: *Can I inadvertently plug a 77 volt HPL lamp into a standard Source Four or any other line voltage spotlight?*

Answer: No. The 77 volt version of the HPL lamp has a third pin on the lamp base to prevent it from being installed in a standard line voltage fixture. The lamp cap of a multiplexed Source Four is designed to accept the additional pin.

Question: *Does Multiplexing produce DC current and is arcing a problem?*

Answer: No. The current produced by multiplexing is actually halfwave AC. The voltage still returns to zero every half cycle and eliminates any arcing problem that normal DC would have.

Question: *Can I use an inductive load (e.g.: transformers) on a circuit that is multiplexed?*

Answer: No. The halfwave AC generated by the dimmer could overheat a transformer if left on for an extended period of time. A similar condition occurs if one of the SCR's in any non-multiplexed dimmer was to fail in an off state. For this reason, care should always be taken when using inductive loads on any SCR based dimmer.

Question: *Should I be concerned about overloading the feed or supply transformer when using Multiplexing technology?*

Answer: No, except in rare cases. Just as attention must be paid to balancing loads across phases, care must be used to insure that the total load on either the "A" or "B" outputs (of the Multiplexers) does not exceed one half the rating of the dimmer. As long as this is done, a multiplexing system puts no more burden on the transformer than an ordinary SCR dimming system.

Question: *Will Multiplexing create additional harmonics in the system?*

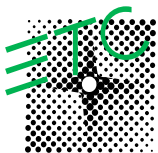
Answer: No. The total harmonic content while using Multiplex mode is no worse than using normal SCR dimmer firing modes.

Question: *Can I accidentally switch a dimmer to Multiplex mode?*

Answer: To minimize the chances of this occurring, a number of steps are required to configure a dimmer for multiplexing at the Sensor dimmer rack. Each action requires operator confirmation, and dimmer status is clearly displayed at all times during setup.

Question: *Are there any problems with lamp flicker with Multiplexed Source Fours?*

Answer: No. The wattage and size of the HPL lamp filament are sufficient to maintain thermal inertia during the half wave cycle. This is in direct contrast to problems with low voltage, low wattage (40 to 100 W) lamps with filaments which lack the thermal inertia to sustain light emission between the half wave AC cycles.



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