Dimmer Doubling

ETC’s Dimmer Doubling gives you two independently controlled lighting circuits for every dimmer you install.

It’s simple. Run one pair of wires from any ETC Sensor or Unison dimmer to a conventional outlet. Connect an ETC Dimmer Doubler, and plug in two ETC spotlights, or pairs of spotlights. That’s it! The two lighting circuits function independently, as if they were connected to separate dimmers.

Dimmer Doubling saves you money by dramatically reducing the number of dimmers you need for your venue. Typically, you could require 25-50% fewer dimmers, potentially saving thousands of dollars in equipment costs.

And fewer dimmers means less wiring, lower installation costs — and more savings.

Features:
- Fewer dimmers
- Less wiring
- Lower installation costs
- No loss of dimmer-per-circuit control
How does Dimmer Doubling work?

Most solid state dimmers use a pair of SCRs that alternate positive and negative half cycles to produce a variable ‘chopped’ wave form, as shown here:

ETC’s Dimmer Doubling software, available in all 120V Sensor and Unison dimmers, allows you to fire the positive and negative half cycles independently, giving you two completely separate control inputs from your lighting console with DMX512 control patch.

An ETC Dimmer Doubler, containing a pair of back-to-back diodes, connects one load to the positive half of the AC cycle, and the other to the negative half.

High performance 77V HPL lamps are readily available from ETC, Osram Sylvania and Ushio through normal distribution channels. They provide the same performance you’ve come to expect from 120V HPL lamps.

Will Dimmer Doubling work with all lighting fixtures?

No. Dimmer Doubling is designed specifically for ETC’s Source Four fixture products using 77V HPL lamps and controlled by a Sensor or Unison dimming system. It does not support any other devices, including 120V fixtures and inductive loads. 77V HPL lamps have an additional pin that prevents you from installing them into a non-Doubled fixture.

How many 77V lamps can I use with a Dimmer Doubler?

Dimmer Doublers use one or two 77V 550W HPL lamps per A or B channel, giving you up to four lamps per Doubler.

What is the voltage at the fixture?

Even though the half-wave RMS voltage is 84V, the Dimmer Doubler uses 77V HPL lamps. The Sensor or Unison dimming system regulates the voltage down to 77V, allowing it to compensate easily for power fluctuations and circuit resistance without the output voltage varying.

Can I accidentally plug a 120V fixture into a Dimmer Doubler?

No. Dimmer Doubling produces half-wave AC. The positive half of the AC cycle controls one circuit, and the negative half cycle controls the other. This means you don’t need to worry about the risk of arcing associated with DC circuits.

When I use one 77V lamp, my dimmer current is 7.1 amps. Why is it only 20 amps with four bulbs?

The combined voltages of multiple lamps on a Dimmer Doubler are calculated using non-linear RMS values, giving you a maximum current of 20.2 amps. This matches the 20 amp rating of the circuit breaker in a dimmer module.

How many lights can I use in a Dimmer Doubled system without overloading the mains transformer?

The number of lights depends on the rating of the transformer. You can calculate this by dividing the transformer’s KVA rating by 10.3. Round the result down to get the maximum number of 77V HPL lamps you can use on either the A or B side of a Dimmer Doubler, per phase. Multiply this by six to determine how many 77V HPL lamps you can use if you evenly load the A and B channels across all three phases.

\[
\text{KVA} \times 10.3 \times 6 = \text{LAMPS}
\]

Coming at it from the opposite direction, if you know how many Dimmer Doubled lamps you want to use, multiply that number by 1.717 to determine the minimum KVA rating your transformer should have.

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\text{LAMPS} \times 1.717 = \text{KVA}
\]

As long as you follow these rules, you protect your transformer from overload or saturation.

Is it true that Dimmer Doubling generates more harmonics than a standard dimming system?

Actually, a Dimmer Doubler with both channels on generates the same amount of harmonics as a standard dimming system. If the Dimmer Doubler has only one channel on, it generates a different type of harmonics, but only half as much. As long as your transformer is properly rated (see above) neither type of harmonics will cause problems in your system.

ETC Dimmer Doubler is UL and cUL listed.

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