

University Contact: Electrical Services, Maintenance  
& Operations  
(302) 831-1744

## 26 09 23 \_INTERIOR DIMMING SYSTEM

### PART 1 GENERAL

#### 1.1 DESIGN REQUIREMENTS

- A. Dimmers for general use (classrooms, seminar rooms, etc.) to be LED. Use electronic dimming drivers with 0-10 volt dimming system components.
- B. All the components for the dimming system, drivers and controls shall be compatible with each other if there is more than one manufacturer of all the aforementioned components.
- C. The dimming system shall have interface capabilities that allow it to be controlled by another manufacturer's AV system.

#### 1.2 SPECIFICATIONS

- A. FLUORESCENT DIMMING BALLASTS (TO BE USED ONLY FOR REPLACEMENT IN EXISTING FIXTURES)
  - 1. Unless otherwise indicated in the lighting fixture schedule, dimming ballasts shall be low energy, solid-state type for use on 2-, 3-, and 4-foot, 265 mA, rapid start T-8 and T-5 lamps or 36/39, 40 and 50/55 watt T-5 compact fluorescent lamps. Ballasts shall have an average Ballast Factor of 0.85 or better.
  - 2. All ballasts shall be UL listed, class "P", high power factor ninety-five percent (95%) or above.
  - 3. Single, two-lamp or three-lamp fluorescent ballasts shall be used in any one luminaire. Luminaires shall be tandem wired, as necessary, to utilize multi-lamp socket and shall not exceed 7 feet for T-8 lamps.
  - 4. Ballasts shall have a Class "A" sound rating or better.
  - 5. Input current third harmonic content shall not exceed fifteen percent (15%).
  - 6. Ballasts shall have an average lamp current crest factor of 1.7 or less.
  - 7. Ballasts shall comply with requirements of the FCC regulations Part 18 for electromagnetic and radio frequency interference in Class A applications and ANSI standards C82.11 and C62.41.
  - 8. Ballasts shall have a frequency of 20KHz or greater and shall operate without visible flicker.
  - 9. Maximum ballast case operating temperature shall not exceed 65°C.
  - 10. Ballasts shall maintain constant light output over operating ranges of 90 volts to 145 volts (120-volt ballasts) and 200 volts to 320 volts (277 ballasts) 50/60 Hz.

11. Ballasts shall dim continuously between one hundred percent (100%) to ten percent (10%).
12. Ballast dimming circuitry shall be UL Class 2 and fully isolated from ballast input power. Ballasts shall require no intermediate trimming controls between ballast and controlling device. Ballasts wiring shall source a maximum 500 micro ampere current for control purposes between 10 volts and 0 volts.
13. Basis of design Manufacturer and Model No.: Lutron “ECO-10.”

B. COMPACT FLUORESCENT DIMMING BALLASTS (TO BE USED ONLY FOR REPLACEMENT IN EXISTING FIXTURES)

1. Unless otherwise indicated in the lighting fixture schedule, dimming ballasts shall be low energy, solid-state type for use on 18, 26, 32, and 42 watts, 4 pin rapid start T-4 lamps.
2. All ballasts shall be UL listed, class “P”, high power factor ninety percent (90%) or above.
3. Single, two-lamp or three-lamp fluorescent ballasts shall be used in any one luminaire.
4. Ballasts shall have a Class “A” sound rating or better.
5. Input current third harmonic content shall not exceed twenty percent (20%).
6. Ballasts shall have an average lamp current crest factor of 1.7 or less.
7. Ballasts shall comply with requirements of the FCC regulations Part 18 for electromagnetic and radio frequency interference in Class A applications and ANSI standards C82.11 and C62.41.
8. Ballasts shall have a frequency of 20KHz or greater and shall operate without visible flicker.
9. Ballasts shall dim continuously between one hundred percent (100%) to five percent (5%).
10. Ballasts shall be capable of striking lamps at any light level without first flashing to full light.
11. Ballast dimming circuitry shall be UL Class 2 and fully isolated from ballast input power. Ballasts shall require no intermediate trimming controls between ballast and controlling device. Ballasts wiring shall source a maximum 500 micro ampere current for control purposes between 10 volts and 0 volts.
12. Basis of design Manufacturer and Model No.: Lutron “Hi-Lume.”

C. LED

1. Design all LED drivers with 0-10 volt dimming, unless otherwise approved by the University, -20°F starting.

D. CONTROLS

1. Basis of Design: Wattstopper DLM, Lutron Vive.
2. Design for the use of occupancy sensors, daylight harvesting and dimming as required by IECC and ASHRAE 90.1.

3. Design for room controllers with digital control or wireless hub.
4. Provide description data of system and wiring diagrams where required.
5. Where an existing system is present, extended and utilize same manufacturer's compatible components.

PART 2 END OF SECTION