

SDERC Lighting Display

Hibays & Other Metal Halide Applications: Dimmable Electronic Ballast and Ceramic Metal Halide Lamp

Location: Mobile Display

Technology Description: Delta Power Supply's SuperBallast™ dimmable electronic ballast and ceramic metal halide. The high frequency DPS ballast consumes about ¼ the wattage of a magnetic ballast, and is dimmable to 35% of total light output. This ballast starts lamps differently than magnetic ballasts and most other electronic ballasts, which may increase lamp life significantly. The voltage stability results in better color rendition and uniformity among the lamps. The DPS ballast brings the lamp to 80% light in 75 seconds or less. When dimming is disengaged, it takes approximately 20-30 seconds for the light to return to 100% light level. Although electronic ballasts can greatly reduce restrike times with quartz pulse start metal halide (PS MH) lamps, restrike times with ceramic metal halide (CMH) can be 15 minutes with electronic or magnetic ballasts. However, lamp manufacturers are investing much more time in developing CMH rather than quartz PS and quartz standard (probe start) MH. CMH lamps have a color rendering index of 85 -94 versus 65-70 for quartz PS or standard MH.

Display unit has one standard magnetic ballast with a 175W standard MH and one dimmable DPS ballast with a 150W CMH. The magnetic ballast system draws 210W and the dimmable ballast system draws 163W at full output. At end of life, the 150W CMH lamp provides more lumens than the 175W standard MH. This display unit compares low wattage MH systems so the lamps are not too bright at a short distance. The benefits of CMH and electronic ballasts are much more pronounced in higher wattage applications. For example, a 400W standard MH lamp with magnetic ballast consumes about 460W and provides about 36,000 initial lumens, compared to a 320W CMH lamp with electronic ballast which consumes about 333W and provides about 37,000 initial lumens.

Applications: Hibay & other MH lighting applications, such as lowbays, recessed cans and tracks.

Energy Savings: The dimmable ballast and ceramic metal halide saves 47W per fixture versus the standard magnetic ballast and metal halide. Without savings from dimming the lamps, the ceramic metal halide will save 200 kWh/yr and \$30/yr (assuming 4000 hrs/yr and \$0.15/kWh).

Costs: The dimmable ballast costs 3 times more than a standard magnetic ballast. CMH lamps cost about 3 – 4 times more than standard MH lamps and about 2 - 3 times more than PS MH lamps. As more manufacturers make more types of CMH lamps, volume should increase and pricing should come down.

Donated Product: SDREO would like to formally thank Ken Patterson of Advanced Energy Innovations (www.advancedenergy.org) for donating the fixture and lamps. Ken can be reached at (951) 453-6890 and kenpatterson@aeiconsultant.com.

Discussion: Although many people have jumped on the T8 or T5HO hibay bandwagon, in many applications, electronically ballasted CMH with high performance domes can often be a better solution. These applications include where high CRI is critical, fixture appearance & uniform uplight is important, or hot/cold applications. Most CMH of 250W or greater have at least 90 CRI, which is higher than typical fluorescents (there are some fluorescents that have higher than 86 CRI, but the lumens are much lower). More information on fluorescent and MH hibays is available at 'Hibays – It's all about the Details' downloadable in the article page of www.lightingwizards.com.