

Application Note

Room Controller with integral Demand Response

Overview

Reduce the strain on current utility grid and take advantage of utility incentives with the Room Controller integral Demand Response. Despite the fact that lighting controls are being added to meet code requirements and to boost energy efficiency, lighting is still one of the top consumers of energy in commercial spaces.

Unlike other natural resources, electricity must be generated and cannot be stored or stockpiled for later use. Because peak demand occurs sporadically, it offers the following challenges to power utilities.

1. Generating extra power for short time is highly expensive and complicated.
2. There is a high cost for purchasing electricity from out-of-state producers.
3. The California electric grid has already exhibited signs of stress during peak demand period. Continued demands result in the need to update transmission infrastructures at a large expense.
4. Bringing in new, renewable forms of energy like wind and solar power requires the ability to manage inconsistent demand on traditional power infrastructures and balancing demand between multiple resource types.

Rather than implementing costly updates that get immediately passed on to ratepayers in increased utility costs, power utilities have developed programs incentivizing customers to reduce their demand for power to help stem the need to build and operate new power plants and upgrade transmission infrastructures.

A 2007 study, conducted by The Brattle Group, shows that a 5% drop in peak demand could result in substantial savings in generation, transmission and distribution costs – enough to eliminate the need for more than 600 infrequently used peaking power plants over the next 20 years, along with many substations and miles of transmission lines. With an annual savings of \$3 billion, this translates into \$35 billion in avoided costs to ratepayers.

California's Title 24-2013 includes increased requirements for automatic demand response in all commercial buildings at least 10,000 square feet in size. Designers are responsible for specifying compatible controls and building operators are responsible for programming the lighting controls to automatically reduce power consumption.

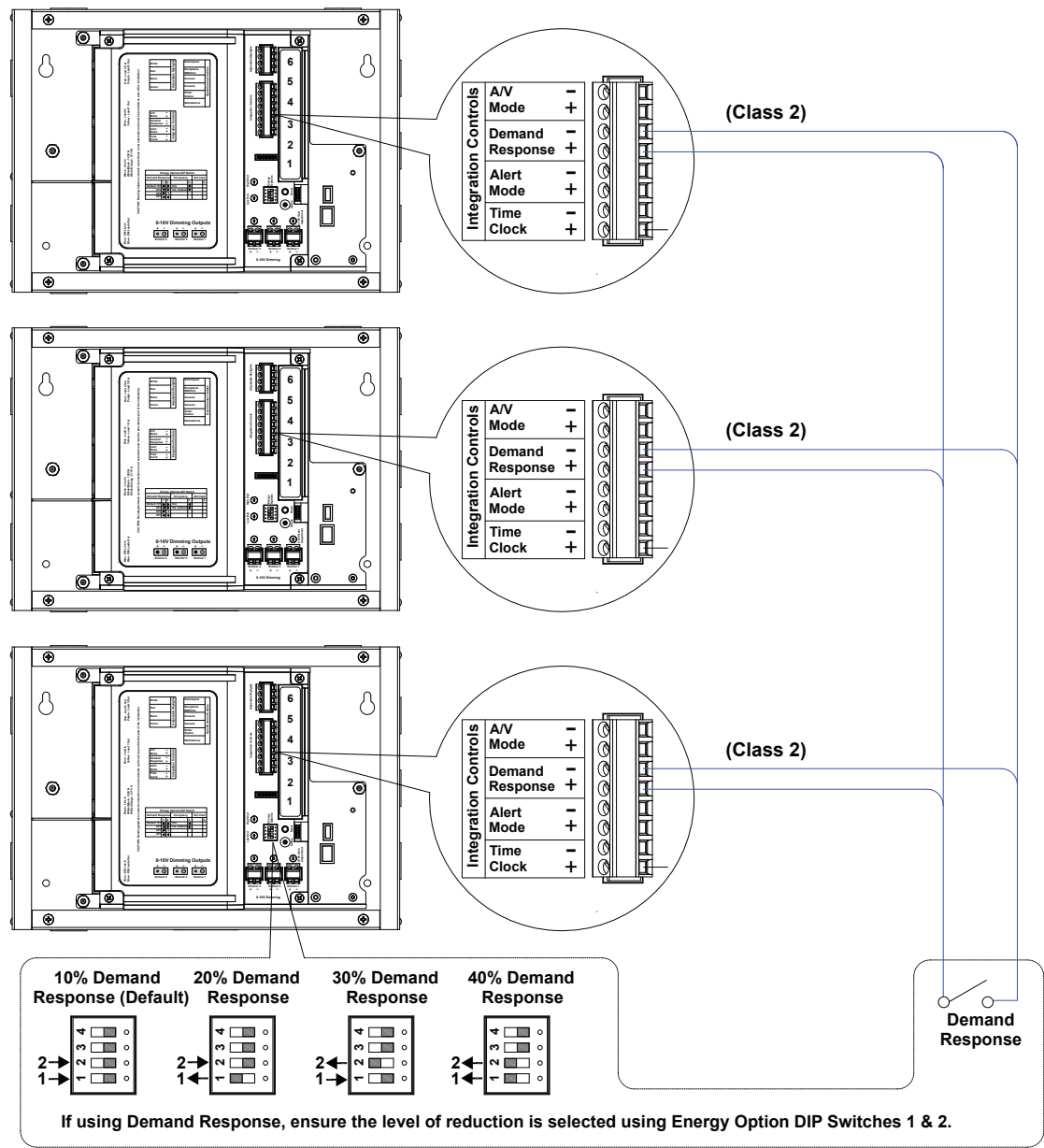
The Room Controller (RC3D and RC3DE) units include an integral Demand Response input to meet this requirement.

Cooper Lighting

by **EAT•N**

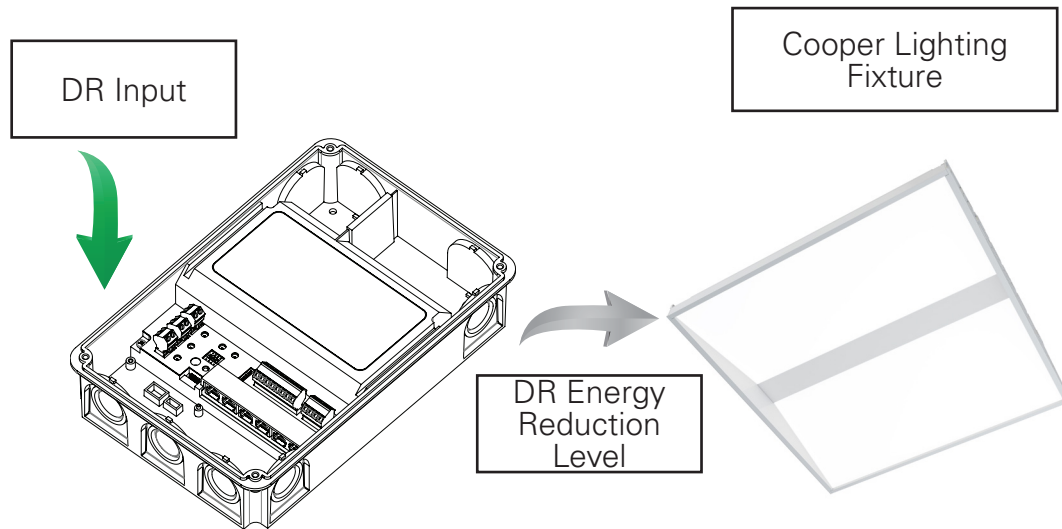
Technical Details

The Greengate Room Controller (RC3D and RC3DE) integral Demand Response (DR) input allows a connection from a Building Management System or Utility input device.



The Room Controller offers four energy consumption reduction levels (10%, 20%, 30%, 40%), set by using a simple DIP Switch during installation. When a closure is detected on the DR input, all connected dimmable loads will gradually adjust to the desired energy consumption reduction level. While in Demand Response Mode, occupancy detection, daylighting and manual controls continue to operate normally within the reduced range.

Once the DR input is cleared, lighting will remain at the current light level until a manual or daylighting command causes the light level to be increased. This is done to reduce occupant distractions as well as increase energy efficiency and energy savings.



Conclusion

Demand Response requirements are necessary in today's commercial building designs not only to meet current and future energy codes but also to reduce stress on the power grid and reduce energy cost.

This need will continue to grow with future energy codes and power requirements. Utilizing the Room Controller (RC3D and RC3DE) will ensure that Demand Response is an integral part of your design.

Eaton
1000 Eaton Boulevard
Cleveland, OH 44122
United States
Eaton.com

Eaton's Cooper Controls Business
203 Cooper Circle
Peachtree City, GA
coopercontrol.com

© 2014 Eaton
All Rights Reserved
Printed in USA
Publication No. ACC140113
September 5, 2014

Eaton is a registered trademark.

All trademarks are property
of their respective owners.