SUMMARY

Access to daylight and personal control of electric light improves the health and well-being of patients, reduces anxiety and increases overall patient satisfaction. Simple to use, labeled controls allow hospital staff to provide quality care. Including energy saving strategies such as daylighting, which provides up to 30% savings, and code requirements like integral UL 924 relays qualifies the Room Controller as an outstanding solution for the private patient room.

The Room Controller QuickKit is shipped preconfigured to work out-of-the-box minimizing installation and setup time, while ensuring maximum energy savings. Using this design guide to specify your room with a Room Controller QuickKit catalog number will guarantee that after installation the lighting control system will work immediately as defined on this application guide.

ROOM CONTROLLER SAMPLE ROOM LAYOUT (12’ x 16’)

Room Controller QuickKit
RCQK-HC3E-HC1-HC2-3ZD-D1-W

Product Legend

QTY1: RC3DEHC
3 RELAY + 3 DIMMER + 1 EMERGENCY RELAY

QTY1: RC-4TSB-HC1-W
GENERAL, EXAM, READING, ALL OFF

QTY1: RC-6TSB-HC2-W
GENERAL, EXAM, READING, RAISE, LOWER, ALL OFF

QTY1: GPCS-3Z-DIM
3 ON/OFF & 3 ZONE DIMMING PATIENT CONTROLS

QTY1: GG37P
37PIN CONNECTOR FOR GPCS-3Z-DIM MOUNTED ON HEADWALL

QTY1: DSR-CFMOIR
DAYLIGHT SENSOR

QTY1: GGRJ45-10-G
QUICKCONNECT CABLE 10’

QTY1: GGRJ45-50-G
QUICKCONNECT CABLE 50’

SINGLE BOX PACKAGING WITH WIRING DETAIL AND INSTALLATION

DOWNLIGHT FIXTURES

RECESSED FIXTURES

FOR GUARANTEED COMPATIBILITY REFER TO PREFERRED COOPER LIGHTING FIXTURE INFORMATION BELOW.

CONTROL SEQUENCE

- Manual On
- Patient personal control from pillow speaker, 3 relay On/Off and 3 dimming zones
- Direct integration with most major Nurse Call Systems
- Providing users with well-based dimming controls to adjust the lighting levels to meet their needs
- Automatic multi-zone daylight dimming out-of-the-box
- High-end trim/tuning to define target light levels guarantees energy savings
- BMS integration for HVAC control based on Occupancy

INTEGRATED CAPABILITIES

Daylighting Control  Manual Control  Integration  Emergency

COOPER LIGHTING GUARANTEED COMPATIBLE FIXTURES

<table>
<thead>
<tr>
<th>Room Controller Patient Room Lighting Layouts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fat-Safe</td>
</tr>
</tbody>
</table>

Refer to these Cooper Lighting data sheets for lighting layouts and illuminance value information.
In developing a patient room lighting control solution, Cooper Controls found existing methods for providing patients control over natural and electric lighting levels to be inadequate. Control solutions that rely on existing off-the-shelf pillow speakers and nurse call station interfaces are severely limited in functionality. On/Off only control of a limited number of lighting zones is typical for these systems.

To address this issue, Cooper Controls developed a line of proprietary pillow speakers designed specifically to support the control of natural and electric light. These units offer the following features:

- Support for up to three zones of electric lighting control
- An all zones On/all zones Off function
- Independent Raise/Lower control of each zone
- Shade Raise/Lower function
- Sealed design reduces potential risk of infectious fluids or solids settling into the unit, even in the speaker area
- High-impact case material is designed to withstand over 100 drops onto a concrete floor without impacting its functionality
- Standard interface to leading nurse call stations

These exceptionally functional control devices interface with a state of art, small form factor lighting control panel. This panel is capable of supporting a digital switch network. Multiple digital switch stations may be used in conjunction with the pillow speaker to provide additional control points for staff and visitors.

### PILLOW SPEAKER CONTROL FUNCTIONALITY

**Emergency Note:**
Emergency load tracks with normal lighting. YELLOW load for On/Off. If dimming it will be adjusted with the dimming zone it is connected to. Upon loss of normal power to the RC3DE, the emergency load will be forced On and full bright to 100%.

In room ladderless testing is done by pressing the "All Off" button four times, within 3 seconds.

The RC3DE is UL 924 listed.

#### 0-10V Dimming Zone Note:
The 0-10V dimming zones within the Room Controller can be wired and controlled independent of the connected loads. This allows each load to have a dedicated 0-10V dimming zone or a single load to have up to three 0-10V dimming zones.

**Emergency Note:**
Emergency load tracks with normal lighting YELLOW load for On/Off. If dimming it will be adjusted with the connected dimming zone it is connected to. Upon loss of normal power to the RC3DE, the emergency load will be forced On and full bright to 100%.

In room ladderless testing is done by pressing the "All Off" button four times, within 3 seconds.

The RC3DE is UL 924 listed.

#### Room Controller - Private Patient Room w/Daylight Dimming and Pillow Speaker Integration

**Cooper Controls**

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Email: controls@cooperindustries.com
Website: www.coopercontrol.com

**Drawing Name:** RC3DEHC-PatientRoomWiring.dwg  **Drawing Date:** 1/10/2013
MOUNTING THE ROOM CONTROLLER
The Room Controller mounts above the ceiling in the space it is controlling, typically above the headwall so it can be easily wired to the 37pin connector and Nurse Call System. The Room Controller includes breakouts for direct conduit connection limiting the need for additional junction boxes. Mount the Room Controller using the keyhole slots at the top and secure to the wall using the holes at the bottom of the Room Controller.

Connect conduit to the line voltage breakout connections and connect the line and load wires. Connect low voltage cables either through the low voltage breakout openings or by connecting low voltage conduit to the breakouts on the low voltage side of the Room Controller.

Sample Placement Diagram
(for example purposes only)

Sample Load Zoning
(for example purposes only)

ROOM CONTROLLER - PRIVATE PATIENT ROOM
w/Daylight Dimming and Pillow Speaker Integration

WIRING DIAGRAM

DAYSIGHT SENSOR CEILING LOCATION
1. Mount the daylight sensor one to two times the window height from the window wall.
2. Position the sensor so its arrow is pointed toward the nearest window.
3. Ensure the daylight sensor is not obstructed or looking directly at electric light.
4. For narrow spaces mount the daylight sensor near the window facing into the space.

CONNECTIONS

Room Controller 0-10V Dimming Connections
Dimmer 1: Near the Window
Dimmer 2: Middle of Room
Dimmer 3: Far from Window

The daylight sensor will automatically provide multi-zone daylight dimming based on this wiring configuration.

Room Controller and Smart Devices
use Click & Go Connections
1. Wallstations (up to four)  
2. Slider Station Connection (one)  
3. Occupancy Sensors (up to two)  
4. Daylight Sensor (one)  
5. Receptacle Control or BMS Output  
6. Switchpack (controlled with Load 1 for alternate voltage)
**ORDERING**

<table>
<thead>
<tr>
<th>RCQK</th>
<th>HC3E</th>
<th>HC1-HC2</th>
<th>3ZD</th>
<th>D1</th>
<th>P</th>
<th>W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient Stations (Choose up to 4)</td>
<td>Daylight</td>
<td>Pillow Speaker</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- HC1 - General, Exam, Reading, Off
- HC2 - General, Exam, Reading, Raise, Lower, All Off
- 3ZD - 3 Relay On/Off control
- 3ZD - 3 Relay On/Off, 3 zone dimming control
- 2Z - 2 Relay On/Off control
- 2ZD - 2 Relay On/Off, 2 zone dimming control

**Daylight**

D1 - Multi-zone Daylight Sensor w/ Handheld Remote

**Pillow Speaker**

- 3Z - 3 Relay On/Off control
- 3ZD - 3 Relay On/Off, 3 zone dimming control

**Slide stations can not be used if a wallstation with dimming Room Controllers (RC3D, RC3D2, RC3DE)**

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**PRE-DEFINED WALLSTATION MODEL NUMBERS**

- RC-4TSB-HC1
- RC-6TSB-HC2
- GPCS-2Z
- GPCS-2Z-DIM
- GPCS-3Z
- GPCS-3Z-DIM

**HEALTHCARE APPLICATION BUTTON FUNCTIONALITY**

<table>
<thead>
<tr>
<th>Program No.</th>
<th>Button Text</th>
<th>Control Type</th>
<th>Function (Unless a target level is indicated, the dimmer output will default to daylight sensor control)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>General</td>
<td>Toggle</td>
<td>Load 1 (yellow) ON and OFF</td>
</tr>
<tr>
<td>2</td>
<td>Exam</td>
<td>Toggle</td>
<td>Load 2 (red) ON and OFF</td>
</tr>
<tr>
<td>3</td>
<td>Reading</td>
<td>Toggle</td>
<td>Load 3 (purple) ON and OFF</td>
</tr>
<tr>
<td>6</td>
<td>Raise</td>
<td>Raise</td>
<td>Raise All Dimmers</td>
</tr>
<tr>
<td>7</td>
<td>Lower</td>
<td>Lower</td>
<td>Lower All Dimmers</td>
</tr>
<tr>
<td>16</td>
<td>All On</td>
<td>Preset</td>
<td>Load 1 (yellow) ON, Load 2 (red) ON, Load 3 (purple) ON</td>
</tr>
<tr>
<td>8</td>
<td>All Off</td>
<td>Preset</td>
<td>Load 1 (yellow) OFF, Load 2 (red) OFF, Load 3 (purple) OFF</td>
</tr>
</tbody>
</table>

- **Final dimmer output level is determined by the following combination:**
  - High end trim level
  - Daylighting contribution

  If enough natural light is entering the space and either of these features has been implemented, raise commands from pushbuttons or the Greengate Patient Control Station will not override or raise the lighting above the target threshold implemented by these advanced energy savings methods.

**Additional Information:**

Emergency relay will always work under normal conditions with Load 1 (yellow lead).

Alternate Voltage Switchpack: Click & Go connected alternate voltage switchpacks will always track with Load 1 (yellow lead).

**PILLOW SPEAKER FUNCTIONALITY**

<table>
<thead>
<tr>
<th>Input</th>
<th>Button Text</th>
<th>Control Type</th>
<th>Function (Unless a target level is indicated, the dimmer output will default to daylight sensor control)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>General</td>
<td>Toggle</td>
<td>Load 1 (yellow) ON and OFF, Sets Raise/Lower control action to control Dimmer 1</td>
</tr>
<tr>
<td>2</td>
<td>Exam</td>
<td>Toggle</td>
<td>Load 2 (red) ON and OFF, Sets Raise/Lower control action to control Dimmer 2</td>
</tr>
<tr>
<td>3</td>
<td>Reading</td>
<td>Toggle</td>
<td>Load 3 (purple) ON and OFF, Sets Raise/Lower control action to control Dimmer 3</td>
</tr>
<tr>
<td>6</td>
<td>All</td>
<td>Toggle</td>
<td>Raise the selected dimmer zone. Zone controlled is based on last GPCS button that was pressed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Raise</td>
<td>Raise all zones together, ensure that the ALL button is pressed prior to raising the zones.</td>
</tr>
<tr>
<td></td>
<td>Lower</td>
<td>Lower</td>
<td>Lower the selected dimmer zone. Zone controlled is based on last GPCS button that was pressed.</td>
</tr>
</tbody>
</table>

- **Final dimmer output level is determined by the following combination:**
  - High end trim level
  - Daylighting contribution

  If enough natural light is entering the space and either of these features has been implemented, raise commands from pushbuttons or the Greengate Patient Control Station will not override or raise the lighting above the target threshold implemented by these advanced energy savings methods.

**Additional Information:**

Emergency relay will always work under normal conditions with Load 1 (yellow lead).

Alternate Voltage Switchpack: Click & Go connected alternate voltage switchpacks will always track with Load 1 (yellow lead).

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- **Catalog number automatically includes low voltage connection cable, wallplates and connectors based on room type and configuration.**
- **For site specific engraving, please see the Room Controller Wallstation custom engraving form on the Cooper Controls website.**

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† These dimming wallstations can only be used with dimming Room Controllers (RC3D, RC3D2, RC3DE)

†† Slider stations can not be used with a wallstation with Raise/Lower buttons are used.

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