Hubbell Building Automation

CX Commercial Lighting Control Panels

Save Energy, Reduce Project Costs and Increase Control.
CX Panels can save up to 50% in labor and materials when used in place of conventional time clock and contactor combinations. The use of the Astronomical Clock in place of roof mounted photocells increases cost savings, lowers maintenance, and improves reliability.

**Save Time.**
- Compact single enclosure includes relays, control functions and input terminals for low voltage devices.
- All inputs are software assignable to any HBA low voltage input device including switches, motion sensors, and photocells.
- Low voltage devices connect directly to panel without any ancillary parts such as power packs.
- LCD user interface incorporates easy to follow intuitive programming tools.

**Save Energy.**
- HBA CX Panels meet ASHRAE 90.1, IEEC, and California (CEC) Title 24 energy codes.
- CX Panels contribute to LEED certification requirements.
- Allows multiple low voltage inputs from HBA switches, motion sensors, and photocells to enhance energy savings for scenarios such as manual switch ON and automatic motion sensor OFF control.

**Lower Cost.**
- Can save up to 50% in parts and labor cost over conventional time clock and contactor systems.
- Lowers energy consumption with expanded programming options.
- Astronomical clock eliminates the need for roof mounted photocells.
- Pre-programmed scenarios offer a wide variety of options to maximize energy savings for each possible control zone.

**Increase Control.**
- Sunrise/sunset controls provided using internal astronomical clock.
- Scenarios offer many easy to use control combinations.
- Priorities and masking allow for customized customer-centric control solutions.
**CX Panels Product Installation Features**

**Auxiliary Input Features**
- Provisions for multiple device control of a single relay or group.
- Scenarios program allows for easy mapping of auxiliary outputs.

**Product Features**

1. **CX Panel User Interface** – The easy to use and understand color LCD Display with keypad has been designed based on input styles of commonly used devices such as cell phones.

2. **Panel Door Lock** – The CX Panel is designed to be locked once the qualified electrician has completed all connections. All programming, system status, and manual controls are available via the User Interface once the door is secured.

3. **Panel Schedule** – A panel relay schedule card is included in a protective plastic sleeve to allow for all relay circuits, inputs and outputs to be documented by the installing electrician.

4. **Low Voltage Input Device Wiring Diagrams** – Indicates point-to-point connection requirements for each type of device.

5. **Interconnect Cable to User Interface** – This cable may be disconnected to allow for the removal of the door during the panel wiring process. The panel can be powered up and relays manually controlled without the door connected for the electrician to verify circuit connections.

6. **Line Voltage Input Leads** – These leads are marked for various input supply voltages.

7. **Control Power Transformer** – This transformer has multi-tap leads to be connected to common input line voltage supply.

8. **Control Power Disconnect** – A disconnect plug is provided for low voltage input control power to allow for safe removal and replacement of relay cards.

9. **Keyhole Mounting** – No disassembly of internal components is required to mount CX Panels.

10. **Individual Relay Card** – Relays are individually mounted for easy replacement, improved reliability and to allow for panels to include any mix of relay types.

11. **Relay Card Connector** – This connector fits into the socket on the panel motherboard to allow for control of relays by the panel.

12. **Relay Manual Override Button** – Allows for relays to be manually operated. Manual control of relays is also available through the User Interface.


14. **Relay Board Input Terminal Block** – Any type of low voltage input including Switches, Motion Sensors or Photocells may be connected to any relay input terminal block. These inputs are software assignable as to type and control. Any input can control any relay or group.

15. **Line Voltage Control Circuit Terminals** – Lighting circuits are connected to these heavy duty screw terminals. Each terminal will accommodate two #14 - #10 stranded or solid copper wire of the same type and size.

16. **Auxiliary Inputs** – The CX Panel is supplied with additional low voltage inputs to accommodate a wide variety of control scenarios that require more than one input for a relay or group. Any type of low voltage input including Switches, Motion Sensors or Photocells may be connected to any input terminal block. These inputs are software assignable as to type and control. Any input can control any relay or group.

17. **Dry Contact Output Terminals** – Each Output Terminal allows for the CX Panel to signal other systems with N.O./N.C. momentary or maintained contacts.

18. **Master/Secondary Panel Interface Card Connector** – Cards provided with the secondary panel provide easy connection with CAT5 or CAT5e cable.

19. **Door Hinge** – The CX Panel door hinge is designed to allow removal of the door during the installation of line and low voltage wiring for easier access and protection of the user interface. Relay manual override button will operate relays with User Interface cable disconnected from the motherboard.

20. **Wireway Divider** – Separates Line and Low Voltage wiring.

**Dry Contact Output Features**
- Normally open or normally closed output.
- Momentary or maintained.
- Allows for interconnection to other building functions such as security, fire alarm, or building management system.

**Relay Card Features**
- 1-pole and 2-pole relays fit in the same sized space.
- Relay self-identifies once installed.
- Available 20A/1P N/O, or N/C, 20A/2P N/O, or N/C and 30A/1P latching.
- 14K SCCR for 20A/1P N/O or N/C, 20A/2P N/O or N/C.
- 18K SCCR for 30A/1P latching.
CX Panels Programming Capabilities

The easy to use and understand color LCD Display has been designed based on input styles of commonly used devices such as cell phones.

Color LCD Display – Allows for most programming to be completed in a single screen. Right side scroll bars appear when more choices are available than are currently visible.

Function Keys – These keys provide programming choices in various screens. Key labels appear on-screen when keys are available.

Alpha-Numeric Keypad – This keypad is used to populate names and numeric values while programming. Tap/Scroll operation is similar to that used for cell phones.

Escape Key – This key takes the user to the previous screen. Warning prompts when changes have been made but not saved.

Help Key – This key will bring up help screens in specific locations driven by the field that is highlighted.

Navigation Keys – Allows user to navigate Up/Down/Right/Left/Toggle through editable fields to select program choices.

Enter Key – Use this key to make selections.

Color LCD Display – Allows for most programming to be completed in a single screen. Right side scroll bars appear when more choices are available than are currently visible.

Function Keys – These keys provide programming choices in various screens. Key labels appear on-screen when keys are available.

Alpha-Numeric Keypad – This keypad is used to populate names and numeric values while programming. Tap/Scroll operation is similar to that used for cell phones.

Escape Key – This key takes the user to the previous screen. Warning prompts when changes have been made but not saved.

Help Key – This key will bring up help screens in specific locations driven by the field that is highlighted.

Navigation Keys – Allows user to navigate Up/Down/Right/Left/Toggle through editable fields to select program choices.

Enter Key – Use this key to make selections.

CX Programming Specifications

The CX Panel has a diverse set of programming capabilities designed to meet or exceed Energy Code requirements and give maximum flexibility to building users. The User Interface Main Menu is the gateway to easy input and development of system programming for the project. The system provides the following programming capabilities:

- System Settings for Time and Date, Astronomical Clock and System Global Settings
  - Astronomical Clock – Select from Major U.S. Cities List
    - Relay Function, Blink Alert, and After Hours Sweep
    - 4 Open/Close Time Schedules
    - Panel Names, Power ON Settings, and Display Settings
- Scenarios Menu allows for the application of pre-programmed Indoor and Outdoor templates
  - User only needs to input unique information related to the selected Scenario
  - Scenario auto-populates data related to specific chosen behavior
- 96 Groups are available that can include any or all relays
- 64 Schedules are available that can be ON only, OFF only or with both ON and OFF events
  - Schedules may be selected as M-F, M-F + Saturday, or All Days customizable per day
  - All schedules may include Holidays
  - Date ranges may be set for any Schedule
  - 4 levels of Priority can be applied to ON and OFF events independently
- Holidays may be “Block Schedule” dates or may have Holiday Schedules applied
  - A master list of standard holidays may be chosen as recurring year-after-year dates
  - Specific custom calendar dates may be programmed
  - 4 Holiday schedules can be created and applied to any of the 99 dates
- Inputs are program assignable to any type of device
  - Switches, Motion Sensors, or Photocells can be connected to any input
  - Inputs may be jumpered and mapped to additional relays or groups
  - 4 levels of Priority can be applied to ON and OFF events independently
  - Masking can be applied to ON and OFF events independently
  - Panel provides enough device power for one input device per relay
- Outputs are programmable to activate by any schedule or input
  - Maintained or Momentary, Normally Open or Normally Closed contact form selection
- System Tools include Access Control, Manual Control, Diagnostics and System Information
  - Program Save/Back-Up/Restore
  - Upload/Save Program and Logging with SD Card or PC

CX Scenarios Programming

The Scenarios programming feature allows the user to select from a group of pre-programmed control schemes to more easily assign relays and inputs for the desired actions. The use of Scenarios will shorten programming time by only requiring unique input, automatically assigning characteristics, masking and priorities specifically associated with the selected behavior.

Outdoor Scenarios:

- Photocell ON/Photocell OFF
- Photocell ON/Schedule OFF
- Photocell ON/Schedule OFF/Override Switch
- Astro-Clock ON/Astro-Clock OFF
- Astro-Clock ON/Schedule OFF
- Astro ON/Schedule OFF/Override Switch

Indoor Scenarios:

- Switch(s) ON/OFF
- Motion Sensor ON/OFF
- Manual Switch ON/Auto Motion Sensor OFF
- Photocell ON/OFF
- Photocell ON/OFF/Override Switch
- Motion ON/OFF/Photocell OFF
- Switch/Motion ON/OFF/Photocell OFF
- Manual Switch ON/Motion-Photocell OFF
- Schedule ON/Schedule OFF
- Schedule ON/Schedule OFF/Override Switch
- Schedule ON/Schedule OFF/Blink Override Switch
- Schedule ON/Schedule OFF/Blink Sweep Switch
- Schedule OFF/Blink Override Switch
- Schedule OFF/Blink Sweep Switch
- Switch ON/Schedule OFF/Switch ON-OFF After Hours
- Schedule ON/Schedule OFF/Sensor ON-OFF After Hours
- Master Override All Programming Switch
- Master Override All Programming Exterior Input

Easy To Program

It’s so EASY and INTUITIVE that a contractor can complete programming in less than 30 minutes for most projects.

- Simple Arrow navigation and Enter buttons make selections easy.
- Color LCD screen allows for settings to be made in a single screen.
- All Low Voltage Inputs are assignable to any type of control device.
- Help screens are available throughout the program by touching the HELP key when the symbol appears.
- Naming is made easy through selectable name input.
- Choose City and State from a large list of pre-configured longitude and latitude values.
CX Commercial Lighting Control Panels
CX Master and Stand Alone, and Secondary Panels

CX Panels Overview.

The Hubbell Building Automation CX Commercial Lighting Control Panels provide feature-rich and cost effective lighting control for maximum energy savings. The LCD User interface is located in the door and utilizes simple and intuitive scrolling menus to program, check status or update the panel. The easy to use Pre-Programmed Scenarios Menu makes project commissioning simple and fast.

CX Master / Secondary Panels are easily applicable to a wide range of small to medium commercial projects.

CX04 / CX08 Configurations

- 4-Relay Stand Alone
- 8-Relay Master
- 8-Relay Secondary

CX16 / CX24 Configurations

- 16-Relay Master
- 24-Relay Master

Note:
1. 4-relay panels are not available as Master or Secondary.

CXR Relays Overview.

The CX Panels have 5 types of available CXR relays. Each relay is individually board mounted and can be installed in any combination in the panel. Types include electrically held normally open (N.O.), electrically held normally closed (N.C.), and latching. Ratings are 20A/1P, 20A/2P, and 30A/1P. Pre-Configured Panels are available with relays of the same type. Combinations of any relay type must be ordered separately and field installed into Space Only standard panels.

Pictured above—left to right, CXR2N & CXR2C 20A/1P Relays; CXR3L 30A/1P Relay; CXRTN & CXRTC 20A/2P Relays.

Cable Piping
- CAT 5 or CAT5e Cable
- Maximum 750’

Low Voltage Devices
- Momentary Switch
- Interface Master/Secondary Card
- Motion Sensors

Low Voltage device that control the same zone may be parallel wired.

hubbell-automation.com
**CX Commercial Lighting Control Panels**

**Product Ordering Guide**

**CX4, CX8, CX16, CX24 Panels**

**CX Relays**

**RELAY TYPE**

<table>
<thead>
<tr>
<th>MODEL</th>
<th>RELAY TYPE</th>
<th>INPUT VOLTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2N</td>
<td>20A Electrically Held N/O 120-277V</td>
<td>14KSCCR @ 277VAC</td>
</tr>
<tr>
<td>2C</td>
<td>20A Electrically Held N/C 120-277V</td>
<td>14KSCCR @ 277VAC</td>
</tr>
<tr>
<td>3L</td>
<td>20A Electrically Held N/O 480V</td>
<td>14KSCCR @ 480VAC</td>
</tr>
<tr>
<td>TC</td>
<td>20A Electrically Held N/C 480V</td>
<td>14KSCCR @ 480VAC</td>
</tr>
</tbody>
</table>

**CXR Relays**

**RELAY TYPE**

<table>
<thead>
<tr>
<th>MODEL</th>
<th>RELAY TYPE</th>
<th>INPUT VOLTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2N</td>
<td>20A Electrically Held N/O 120-277V</td>
<td>14KSCCR @ 277VAC</td>
</tr>
<tr>
<td>2C</td>
<td>20A Electrically Held N/C 120-277V</td>
<td>14KSCCR @ 277VAC</td>
</tr>
<tr>
<td>3L</td>
<td>20A Electrically Held N/O 480V</td>
<td>14KSCCR @ 480VAC</td>
</tr>
<tr>
<td>TC</td>
<td>20A Electrically Held N/C 480V</td>
<td>14KSCCR @ 480VAC</td>
</tr>
</tbody>
</table>

**CX Panel Accessories**

**Photocells**

- Open Loop photosensor
- Foot-candle range: 0.3–6,000 fc
- Indoor and outdoor versions
- Mounts vertically and horizontally
- Architecturally attractive design
- UL and CUL listed

**Motion Sensors**

The CX Panels support direct connection to HBA Omni™ Series Stand Alone Motion Sensors featuring IntelliDAPT™.

- Ceiling mounted Omni™ series and wall mount LightOWL™ series sensors can be used with the CX Panel inputs without the use of power packs.

**ORDERING INFORMATION**

Visit hubbell-automation.com for detailed catalog numbers, specifications and application guidelines.

**Low Voltage Switches**

- Add WH for White or IV for Ivory finish at the end of the part number.

**LOW VOLTAGE SWITCHES**

<table>
<thead>
<tr>
<th>RELAY TYPE</th>
<th>ORDERING INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>LVSM1NP</td>
<td>Momentary, 1 Button, No Pilot</td>
</tr>
<tr>
<td>LVSM1PL</td>
<td>Momentary, 1 Button, w/Pilot LED</td>
</tr>
<tr>
<td>LVSM2NP</td>
<td>Momentary, 2 Buttons, No Pilot</td>
</tr>
<tr>
<td>LVSM2PL</td>
<td>Momentary, 2 Buttons, w/Pilot LEDs</td>
</tr>
<tr>
<td>LVSM3NP</td>
<td>Momentary, 3 Buttons, No Pilot</td>
</tr>
<tr>
<td>LVSM3PL</td>
<td>Momentary, 3 Buttons, w/Pilot LEDs</td>
</tr>
<tr>
<td>LVSM4NP</td>
<td>Momentary, 4 Buttons, No Pilot</td>
</tr>
<tr>
<td>LVSM4PL</td>
<td>Momentary, 4 Buttons, w/Pilot LEDs</td>
</tr>
</tbody>
</table>

**DIMENSIONAL INFORMATION**

Panel and Mounting

- CX04 and CX08: 14.5” wide x 20” high x 4” deep
- CX16 and CX24: 20” wide x 24” high x 4” deep

**CXRTN, CXRTC**

- 20A/2P N/O and N/C

Consult hubbell-automation.com for detailed catalog numbers, specifications and application guidelines.
**CX4, CX6, CX16, CX24 Panel**

**Programming and configuration**
- Programmable via user interface mounted on door
- Fully programmable by users with door closed and locked
- Stand Alone, Master, or Secondary Panels. One Master and one Secondary may be connected as a system

**Physical**
- NEMA 1 surface enclosure
- Pre-drilled mounting holes for mounting to wall, KOs provided on top and bottom
- 4/8 relay and 16/24 relay enclosures are provided with a hinged locking door

**Electrical Input**
- 120/208/240/277VAC for 4/8 size, 120-277VAC Universal for 16/24 size Standard, 120/277/347 Optional

**Operating environment**
- Location: NEMA 1 interior space
- Operating temperature: 0°–50° C (32°–112° F)
- Relative humidity (non-condensing): 10%–90%

**Certifications**
- Certified to UL 916 and cUL

**CXR Relay**

**Physical**
- Mounts inside NEMA 1 surface panel enclosure
- Individual relay cards – 1P and 2P are equal in size

**Operating environment**
- Location: NEMA 1 interior space
- Operating temperature: 0°–50° C (32°–112° F)

**Certifications**
- Certified to UL 916, UL924 and cUL

### CX Relay Ratings

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Load Ratings</th>
<th>SCCI Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Volts</td>
<td>Tungsten</td>
</tr>
<tr>
<td>CXR2N – Elect Held, N.D.</td>
<td>120</td>
<td>15A</td>
</tr>
<tr>
<td></td>
<td>277</td>
<td>N/A</td>
</tr>
<tr>
<td>CXR2N – Elect Held, N.C.</td>
<td>130</td>
<td>15A</td>
</tr>
<tr>
<td></td>
<td>277</td>
<td>N/A</td>
</tr>
<tr>
<td>CXR3L – Latching</td>
<td>130</td>
<td>20A</td>
</tr>
<tr>
<td></td>
<td>347</td>
<td>N/A</td>
</tr>
<tr>
<td>CXR5N – Elect Held, N.D.</td>
<td>480</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>480</td>
<td>N/A</td>
</tr>
</tbody>
</table>

*Electronic Fluorescent Ballast Rating is 16A

**CX PANEL ACCESSORIES**

**Photocell LUXSTATLS & LUXSTATLSO**

**Electrical**
- Four jumper-selectable foot candle ranges: 0.3–30fc, 3–300fc, 30–3,000fc; 60–6,000fc
- Low-voltage Class 2 device
- Protective hard-plastic cover

**Dimensions**
- 2” diameter x 1.2” height (50.8 diameter x 30.5mm height)

**Certifications**
- UL and cUL listed

**Low Voltage Switches – LVSM Series**

**Electrical Ratings**
- Each switch: 100mA @ 30VDC Max
- Each pilot LED: 18-30VDC, internal 2.2kohm resistor

**Configurations**
- 1 - 4 buttons, with or without pilot LED
- Momentary

**Operating environment**
- Indoor use only
- Operating temperature: 32° – 122°F (0° - 50°C)
- Relative humidity (non-condensing): 10%–90%

**Dimensions**
- 4.87” dia., 2.44” deep (123.7 mm dia., 62mm deep)

**Mounting**
- Single-gang NEMA-style switch box (average switch box)
- Decorator-style wall plate not included

Hubbell Building Automation, Inc.
9601 Dessau Road, Building One, Suite 100 | Austin, Texas 78754 USA
(512) 450.1100 | (888) 698.3242

ver. 3: 10-2011

hubbell-automation.com