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LightSweep - Lighting Control System

Components and Applications



What is Lighting Controls

Lighting control is an ideal solution to ensure the comfort of residents, tenants, consumers, or employees.

Lighting control represents any device, group of devices or systems that turn lights ON/OFF, change light level, or create scenes.





LightSweep[™] modular control solution

Modularity

Easier to meet specification, potentially improving price competitiveness (avoids "over spec"); CAT5 connectivity

Simple Design —

Snap-in modules enable easy factory or field installation, quick field replacement, and simple upgrades. Easy to program in standalone configuration

Customization -

Switch, dim, schedules and sensors allow for complete control solutions. Create custom zones, scenes, and constraints at any time, resulting in enhance flexibility (and value) to end user

BACnet

Easier to integrate with 3rd party products (e.g., field
 devices, wireless networks, BMS). Provides software and webserver connectivity.





LightSweep - ON/OFF and Dimming Control

The dimming module allows for easy dimming control of 0 – 10V dimming fixtures. Each module has 4 channels and each channel can control up to 50 drivers. Multiple modules can be added for unlimited expandability. Fixtures with 0-10V leads wired together form dimming zones. Dimming zones can be the same or different from how the fixtures are connected to the power circuit.





System Components



Relay Modules – CLCRM6/CLCRMS6 Each controls 6 relays. Pushbuttons for local override LED status indicator. Available with individual switch inputs or without.



Scheduler - CLCDLS

Eight schedules and 16 lighting groups.

Allows to program the entire system – sensors, switches, timers, Astronomic clock, network troubleshooting, remote control.

Can be installed in the panel or remote on CAT5.



Group Switch Module – CLCGSM8 Eight programmable inputs – configurable as Switch or Sensor (photocell or occupancy sensor). Also provides power to all components in the panel and attached to the network.



Programmable Switches - CLCSWTx Soft touch switches can be field configured as 1, 2, 4 or 8 buttons. Each button can control any configuration of ON/OFF relays and dimming channels, allowing to create very complex control scenes. As the face plate is transparent, the switch color can be changed easily by typing a new label.



Power Injector - CLCPIM

Provides power to all components in the panel and on the network when no programmable inputs are needed.



Dimming Module – CLCDIM4

Four dimming channels – using 0-10V controls. Each channel can sync up to 25 mA (50 ballasts).

Four analog inputs for photocells – each linked to its own output.

Can be programmed to dim based on a single sensor with different offsets for each channel or to create scenes operated by programmable switch, sensors or time schedules.

Can be installed in the panel or remote connected with CAT5.





Sensors – Photocells and Occupancy sensors

Are used to create a fully functional and automated system.

Sensors connected to the system can create different scenarios for different times of day.





System Components



BACnet Controller – CLCBnet The CLCBnet controller allows to expand the system, to add front-end control using custom graphics or interface to BMS via the BACnet protocol. It is a fully programmable controller.



Touchscreen– CLCTSI-x. Requires the CLCBnet controller.

The CLCTSI screen is used as an interface with custom graphics. The display can host multiple screens with link buttons for navigation.

- CLCTSI-1 acts as a switch interface –scene controls : ON, OFF, dimming, pre-sets.
- CLCTSI-2 adds the Scheduling capabilities user can change system schedules
- CLCTSI-3 runs a web server module, all graphic screens are accessible through a web browser.



Software

				Car	icel
Network	Name	Object	Value	Units	
BACnet Protocol	S# DimmingModule20 A01	200.AO402001	50	%	
CLCBnet 100 (100) CLCBnet 200 (200) CLCTSI (799) CLCTSI (799) CLCTSI (799)	S+ DimmingModule20 A02	200.AO402002	20	%	
	S+ DimmingModule20 A03	200.AO402003	100	%	
	Sit DimmingModule20_A04	200.AO402004	100	%	
	@+ RelayModule Panel(01) Relay(01) - CAN10 BO1	200.80410101	OFF		
P Reports	@ RelayModule Panel(01) Relay(02) - CANIO BO2	200.80410102	OFF		
Granhier	@+ RelayModule Panel(01) Relay(03) - CAN10 B03	200.80410103	OFF		
	@+ RelayModule Panel(01) Relay(04) - CAN10 BO4	200.80410104	OFF		
	@+ RelayModule Panel(01) Relay(05) - CAN10 BO5	200.80410105	OFF		
	@+ RelayModule Panel(01) Relay(06) - CANLO BO6	200.8O410106	OFF		
	*S CPU Board Temperature	200.A383	42	*C	
	*Si GroupSwitch01 Photocell All	200.AJ400101	0	96	
	*S GroupSwitch01 Photocell AI2	200.A3400102	0	96	
	◆S GroupSwitch01 Photocell AB	200_A3400103	0	26	
	*Si GroupSwitch01 Photocell Al4	200.A3400104	0	%	
	*S GroupSwitch01 Photocell Al5	200.AJ400105	0	36	
	♦S GroupSwitch01 Photocell Al6	200_A3400106	0	%	
	*S GroupSwitch01 Photocell AI7	200.A3400107	0	%	
	*S GroupSwitch01 Photocell AI8	200.AJ400108	0	ft-c	
	*S DimmingModule20 All	200.AJ402001	0	ft-c	
	ImmingModule20 Al2	200.A3402002	0	ft-c	
	*Si DimmingModule20 AI3	200.A3402003	0	ft-c	
	*Si DimmingModule20 Al4	200.A3402004	0	ft-c	
	+@ Run Clear Button	200.8880	OFF		
	♦@ Unused Button	200.6981	OFF		
	*@ GroupSwitch01 Occupancy BI1	200.89400101	Unoccupied		
	*/// GroupSwitch01 Occupancy BI2	200.85400102	Unoccupied		
	*@ GroupSwitch01 Occupancy BI3	200.65400103	Unoccupied		
	*@ GroupSwitch01 Occupancy BH	200.8\$400104	Unoccupied		
	*/// GroupSwitch01 Occupancy BIS	200.89400105	Unoccupied		
	*/// GroupSwitch01 Occupancy BI6	200.85400106	Unoccupied		
	*@ GroupSwitch01 Occupancy BI7	200.65400107	Unoccupied		
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- The Basic Software Navigator is used for system setup and administration:
 - associated inputs and outputs
 - create trigger points photocell, schedules, switches, occupancy sensors etc.
 - Program or change time schedules
 - Override relays, groups, dimming outputs.
- It allows to create custom programs setup alarms, events and trends, hardware troubleshooting.

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The web server allows to monitor and control the system using the Internet Explorer or any other browsers.

Using custom graphic screens, can provide an easy to use lighting control display that can be launched on a PC, iPad or iPhone device.

This application allows to turn relays ON/OFF, call preset scenes or change time schedules.

WEB Server Module



Stand-alone office controls

Control Panel

Switch Station For scene controls



Office Controls:

- Occupancy/Vacancy sensors – motion based controls
- Photocell for daylight harvesting using the 0-10V dimming controls
- Programmable switch for lighting scene selection



CLCP06 – Corridor/Office Controller





CLCP06 – Classroom Controller



Commercial – Office space

Large office buildings are configured as an integrated system with computer interface using WEB browsers and/or integrated to BMS. A larger panel on each floor installed in electrical rooms controls the core building lighting as corridors, lobbies, large open office spaces. Smaller panels, dimming panels and programmable switch stations are connected with CAT5 to provide local control for smaller offices, conference rooms and muli-purpose rooms. Occupancy sensors and photocells are connected to the system to enhance the control strategy.



Large Relay panel – in electrical room

- Small panels CLCP06 installed in office space
 - BACnet network CAT5/CAT6 between relay panels on different floors
 - CAN bus CAT5/CAT6 connecting switch stations dimming modules and small panels.





Retail Space

Retail Space Controls:

- Stand-alone or integrated with BMS:
- Relay for ON/OFF (open/close hours)
- 0-10V dimming:
 - 50% cleaning and re-stocking
 - 100% customer
 - 80% Demand Response
- Integration with BMS using BACnet protocol





Industrial & Campus Applications

Industrial and campus applications are using BACnet UDP IP communication, which allows remote access and communication between panels using the IT network infrastructure. Panels can be programmed to share information – for example an exterior photocell information can be shared to all panels controlling site lighting and can operate without the need of a computer front-end. System integration to BMS provides increased energy savings.





System Architecture – small to medium size, stand-alone





System Architecture – large installation



the permissions assigned.

Install a BACnet controller (CLCBnet) for each section – it will provide TCP/IP communication and extend the network.

Total length of the CAN bus in each section cannot exceed 3,000 ft and shall be daisy-chain. Maximum number of relay modules per section –is 40 (this means to up to 5 panels with 48 relays each).

Lighting Control IT Network Configuration



Services Provided by GE Team

Roles and Responsibilities

- Provide Application Support
- •Prepare Quotes and Submittal Drawings
- •Document Job Specific O & M Manuals
- Provide Field Services
- Provide Software Services
- •Conduct Training
 - Resources:
 - <u>TLCSupport@ge.com</u>
 - Phone: 877-584-2685



ORDERING

Relay Panel



INTR**12**-

INTR24-

INTR**36**-

INTR**48**-



CLCTUB48

CLCCOV12S	
CLCCOV24S	
CLCCOV <mark>36</mark> S	
CLCCOV48S	

Interior	Installed Option	S				
Capacity	Switch Inputs	Number Relays	Power Module	BACnet	Dim*	Time-Clock
□ INTR12 INTR24 □ INTR36 □ INTR48	🔲 N – (no inputs) 🗮 S – (inputs)	<u>18</u> multiple of 6 to max of interior capacity	ば G – (Group) □ P – (Injector) □ N/A*	B	<u>1</u> (No. mods)	≸ S

Part Number Example:

INTR24-S18-G01S

Dimming Panel



Part Number Example: INTD24-000-005S



Panel Components





or

Interior Configuration – Relay Panel



Interior Configuration – Dimming Panel

Interior	Installed Options			
Capacity	Dim*	BACnet*		
INTD12	<u>5</u> (No. mods)	B	≇ S	

Part Number Example:

INTD24-000-005S





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