Linmore LED
ULTRALINK
WIRELESS CONTROLS SIMPLIFIED

Principles for Designing a Project

LinmoreLED
ULTRA PERFORMANCE LIGHTING

ULTRALINK

Linmore LED's UltraLink, powered by Silvair, is an intelligent lighting control system which utilizes Bluetooth Low Energy (BLE) communications at 2.4 GHz. The complete mesh network system is comprised of wireless fixture controllers, occupancy sensors and wireless switches.

Before designing your UltraLink project, create an account by going to https://ultralink.linmoreled.com using Google Chrome as your browser. Hit create account and follow the prompted instructions. Then, on an iOS device (iPad or iPhone with cellular or Wi-Fi connectivity) go to the App Store and download Linmore LED UltraLink. Access the app, using the same credentials you used when creating the account from your PC.

The UltraLink Web Portal is used for area mapping, zone creation, scheduling, and scene creation. It is recommended to have all web portal features created prior to receiving product on site.

SOFTWARE FEATURES

WEB PORTAL

- Used ANYWHERE with a computer
- Create new projects
- Add collaborators
- Create new Areas
  - Upload floorplans to areas
- Create/ edit Zones
- Assign profiles to zones
- Activate Gateway
- Scheduling
- View connected services
  - Energy Monitoring
  - Occupancy Heat Map
  - Remote Light Control

iOS APPLICATION

- ON SITE ONLY
- Add fixtures or sensors to zones
- Calibrate fixtures or sensors
- Select active photocell in zones
- Manually assign relays
- Test Zone functionality
  - On/ Off
  - Dim
  - Flash
- Test mesh quality
- Reconfigure devices
- Troubleshooting
- Updating fixture/sensor software & firmware

PROFILES AND BEHAVIORS

PROFILE	PROFILE BEHAVIOR	PROFILE DESCRIPTION
P1. **Conference Room**	Vacancy sensing with daylight harvesting	All luminaires are switched on manually with a wall switch and maintained to a defined light level. Light is switched off or dimmed automatically when no motion is detected or there is sufficient daylight available.
P2. **Open Office**	Occupancy sensing with daylight harvesting	All luminaires are maintained to a defined light level. Light is switched off or dimmed automatically when no motion is detected or there is sufficient daylight available.
P3. **Break Room**	Vacancy sensing	All luminaires are switched on manually with a wall switch and switched off automatically when no motion is detected.
P4. **Egress Corridor**	Occupancy sensing	All luminaires are switched on when motion is detected and switch off when no motion is detected.
P5. **Storage Room**	Manual control	All luminaires are switched on and off manually with a wall switch.
P6. **Restroom**	Occupancy sensing	All luminaires are switched on when motion is detected and switch off when no motion is detected.
P7. **Laboratory**	Occupancy sensing with daylight harvesting	All luminaires are maintained to a defined light level. Light is switched off automatically when no motion is detected or there is sufficient daylight available.
P8. **Lobby**	Multiple scenes with time scheduling	The light can be adjusted automatically with scheduling or manually to one of the 4 definable scenes. Each scene can run different control scenario. Gateway required.
P9. **Warehouse**	Occupancy sensing	All luminaires are switched on when motion is detected and switch off when no motion is detected.
P10. **Outdoor**	Multiple scenes with time scheduling	The light can be adjusted automatically with scheduling or manually to one of the 4 definable scenes. Each scene can run different control scenario. Gateway required.
P11. **Outdoor Area Lighting**	Photocell	All luminaires switch on or off depending on whether it gets dark or bright. The light level can adjust automatically to a defined level when occupied.
P##. **Custom Area**		Custom profiles are available for creation. Modification to existing profiles is also available.

DESIGN BEST PRACTICES

GENERAL DESIGN

- An Area should contain a maximum of 200 nodes.
- A node is any device in the zone. (controller, switch, sensor, etc.)
- For mesh best performance do not exceed 60 nodes per zone.
- Zones may have less nodes depending on layout. (i.e. linear areas or large coverage areas).
- Zones can be linked for occupancy sensing or manual control.

PROJECT CREATION

- Detailed Area map uploaded. Include markings / identifiers for Zone locations.
  - Numbering of fixtures or pole locations recommended.
  - CAD or drafting layout of Area floorplan used for interior maps.
  - Google Earth maps are acceptable for exterior projects.
- Zones created and identified on each Area map.
- Properly configured profiles assigned to each Zone.
- Invite ultrasupport@linmoreled.com as a Manager to EACH project.

DESIGN BEST PRACTICES

ZONING / PROFILES

- Smaller Zones will allow for more flexibility in design, implementation, and troubleshooting.
- Minimize size or use of linear Zones/ fixture placements if possible.
- Any changes made to a profile in the web portal will change all profiles sharing the same P# (ex P1, P2, etc.)
- Any changes after installation to profiles will need to be configured within the iOS app on site.

SENSORS

- Ensure adequate coverage of all ingress/egress areas.
- Never have only one photocell sensor per Zone.
- Recommended to have 10-25% of nodes in Zone have sensor.
- Do not place daylight sensors / photocells in areas where light levels are significantly brighter than the rest of the zone.
    - Take special note of illuminated signage, roadway lighting, etc.
- Photocell / motion sensors should have an unobstructed view of the ground.
    - Take note of trees, landscaping, dumpsters, other foreign objects.

DESIGN BEST PRACTICES

ANTENNAS

- Maintain line of sight with neighboring fixtures.
- Selective use of high gain antennas.
  - High gain antennas are used for long distance relays. (500+ feet).
  - Do not exceed more than one high gain antenna in a Zone.

GATEWAY

- One gateway per Area.
- 120V AC and ethernet connection required.
- Gateway must be within communication range of Area it will control.
- The more Zones that can directly communicate with gateway the better mesh quality you will have.
- Install gateway first, or early in the fixture installation process, to verify there are no connectivity issues.
- Network Ports will be approved and whitelisted in firewalls/ servers. For Inbound/ outbound traffic.
- Gateway added to web portal with GPS coordinates.

GLOSSARY

TERM	DEFINITION
Area	Defines / marks out the location of zones and their behaviors. A map uploaded by the user identifies each area. An area cannot be more than 200 nodes.
Daylight Harvesting	Luminaires in combination with a photocell, dim luminaires when daylight is present. Light levels and dimming can be set manually or automatically.
Energy Metering	Energy Monitoring in 15 min aggregates. Gateway required. 200 fixtures maximum per gateway.
Heatmapping: Energy & Occupancy	Energy Heat Mapping & Occupancy Heat Mapping. Gateway required. 200 fixtures per gateway.
High-End and Low-End Trim	Defines minimum and maximum light levels that can be reached with automatic or manual controls.
In Node Scheduling	In-node scheduling allows users to set up events that trigger predefined scenes at desired times. This is accessed with specific profiles that feature the scheduling parameters.
Manual Control	All luminaires in the zone are switched on manually to a defined light level and switched off manually or dimmed with a wall switch.
Manual Override Timeout	Determines how long manual override is maintained after each occupancy sensor trigger. If enabled, lighting will return automatically to default settings. When disabled automatic operation needs to be restored manually.
Node	A node is any device within the Bluetooth mesh network with its own UUID and device ID. Ex: Light fixture, Sensors, Switches.
Occupancy Sensing	All fixtures are switched on automatically to the defined level when motion is detected and switched off or dimmed automatically when no motion is detected for a set time.
On-Power Behavior	Defines what happens when utility power is lost and is restored. Keep light off: The light will remain off on power up. Restore: The light will return to the last level before power failure. Defined light level: The light will come on at this brightness on power up.
Per Fixture Daylight Control	Fixture level controls with daylight harvesting accomplished by an ALS component in every fixture in the zone.

GLOSSARY

TERM	DEFINITION
Per Zone Daylight Control	Zonal level controls with daylight harvesting accomplished by a single ALS component and the balance with fixture controllers.
Scenes	Scenes allows you to set up to 4 customizable profiles using the Ultralink web app. You can name and set different lighting values for each scene depending on their properties, or timing schedule with a Gateway. Scenes can be triggered manually or automatically.
Scheduling via Gateway	Lights can be adjusted automatically with scheduling or manually to one of the 4 definable scenes. Each scene can run a different control scenario. For remote access to schedule, a gateway is required. For local, offline scheduling, see In node scheduling.
Time Scheduling	Gateway is required to access feature. Allows user the ability to set astronomical time clock with specific actions taken at certain times of day.
Timer Switch Control	Manual control with a pre-programmed timeout between a minimum of 1 second to a maximum of 4 hours.
Vacancy Sensing	All fixtures in the zone are switched on manually with a wall switch to the defined light level and switched off or dimmed automatically when no motion is detected for a given time.
Zone Linking	Allows occupancy sensing, vacancy sensing, and manual switch control to be shared between multiple zones, e.g. - controlling multiple zones with a single wall switch.

FINAL REVIEW

- [x] Submitted Project Checklist and Organizer Document.
- [x] Submitted Controls Narrative (applicable only to those who purchased pre-activation).
- [x] UltraLink project is created in web portal along with floorplans uploaded with, zones, profiles, scheduling, etc.
- [x] Collaborator accounts created and given appropriate permissions (including ultrasupport@linmoreled.com).
- [x] Activation support from UltraLink should be scheduled in advance.

ADDITIONAL RESOURCES

For project documentation, please visit this our **UltraDocs** page

For reference support materials, please visit the **UltraLink Help Center**

If you would like to receive additional support from the Linmore UltraLink team, please call 559-444-1390 or email **ultrasupport@linmoreled.com**

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Linmore LED Labs, Inc.
2360 S. Orange Ave, Fresno, CA 93725
559 485 6010 | info@linmoreled.com | linmoreled.com

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