

TekLink™

TL1000 Cloud-Based Wired Control System Overview

Control Systems

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Contents

1.0 Introduction 2

2.0 TekLink TL1000 Overview 3

3.0 System Components 4

 Graphical User Interface (GUI) 4

 Cloud Platform 5

 Cellular Access Point 6

 Bridge 6

 Board on Radio Grid (BORG) 7

 Lens Options 8

4.0 Wiring Guide 9

5.0 System Features. 10

1.0 Introduction

TekLink TL1000 is an adaptive lighting control system that utilizes a two-wire bus communication scheme between system nodes. In addition to occupancy detection and daylight harvesting, the TL1000 system features advanced scheduling and energy management capabilities with cloud-based control of system settings, reporting and notifications for use in parking decks and high bay applications. The system offers the ability to meet ASHRAE 90.1 and Title 24 requirements. This guide details the basic operating principles, features, device information, and wiring guide for TL1000.



2.0 TekLink 1000 Overview

Kenall's TekLink TL1000 Control System reduces luminaire energy consumption by zonal occupancy detection, daylight harvesting, and light load scheduling. Lighting occupancy zones and schedules are configurable through the cloud via a web browser.

System components:

BORG (Board On Radio Grid)

- Controls luminaire light output
- Data capture



BRIDGE

- Collects data from BORGs
- Maintains zone schedule of up to 100 BORGs



GATEWAY & CELLULAR AP

- Connects lighting network to the cloud
- Routes data and system info for up to 10 Bridges



USER INTERFACE

- Lighting zone and schedule configuration
- Provides reports
- Email/Text alert notifications



CLOUD

- Payment Card Industry (PCI) compliant platform allows system control from any location via a web browser

3.0 System Components



User Interface



Graphical User Interface (GUI)

- Remotely manage your TL1000 control system(s) through the latest versions of common web browsers such as Chrome, Internet Explorer, Safari, etc.
- View and optimize lighting zone settings and schedules through a 3D site model
- Set-up email / text alert notifications
- View reports based on an array of system recordings & algorithms:



Occupancy Detection



Light Levels



Energy Consumption



Energy Savings

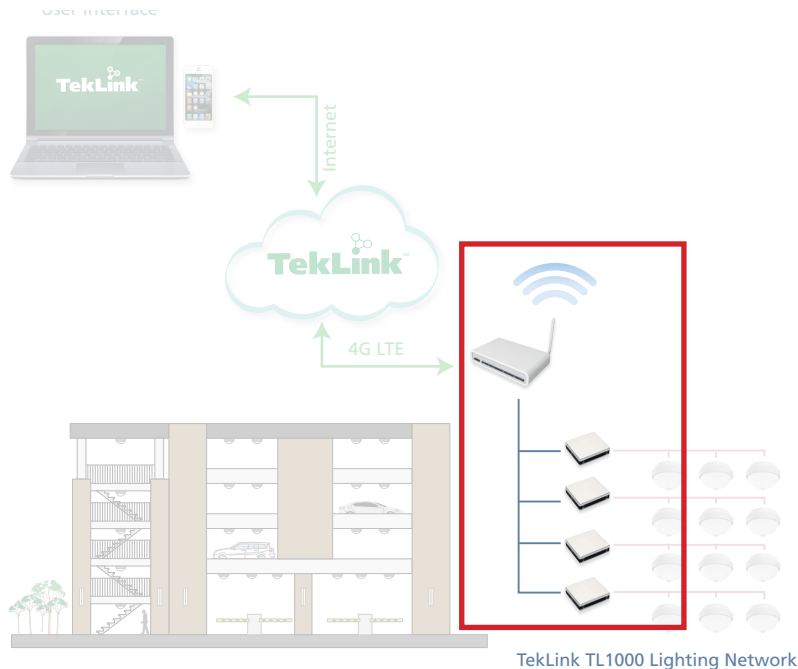
3.0 System Components cont'd



Cloud Platform

- TekLink TL1000 Cloud-based control system is completely isolated from a customer's corporate network, which contains the company's mission-critical information
- Access TekLink web application via a secure server adhering to the Payment Card Industry Data Security Standard (PCI DSS)
- Lighting system data stored in the Cloud and available with customer User ID and password at kenallteklink.com

3.0 System Components cont'd



Cellular Access Point

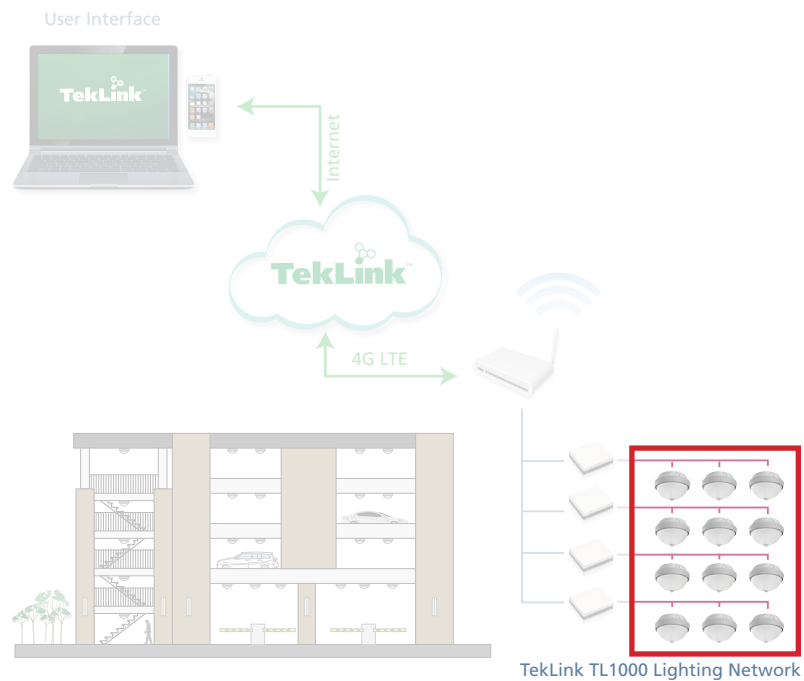
- The TekLink TL1000 cellular access point consists of a Gateway, Industrial Ethernet Switch, and Cellular Router integrated into an IP65 sealed enclosure
- TekLink is secured using HTTPS with a self-signed certificate for access to the web services
- The Gateway and Industrial Ethernet Switch push data and information between kenallteklink.com and the local lighting control system
- A Gateway can manage information for up to 10 Bridges



Bridge

- The Bridge passes lighting schedules and zone configuration information from the Gateway to Luminaires containing a BORG (Board on Radio Grid) device
- Uploads data from up to 100 BORGs and passes it to the Gateway

3.0 System Components cont'd



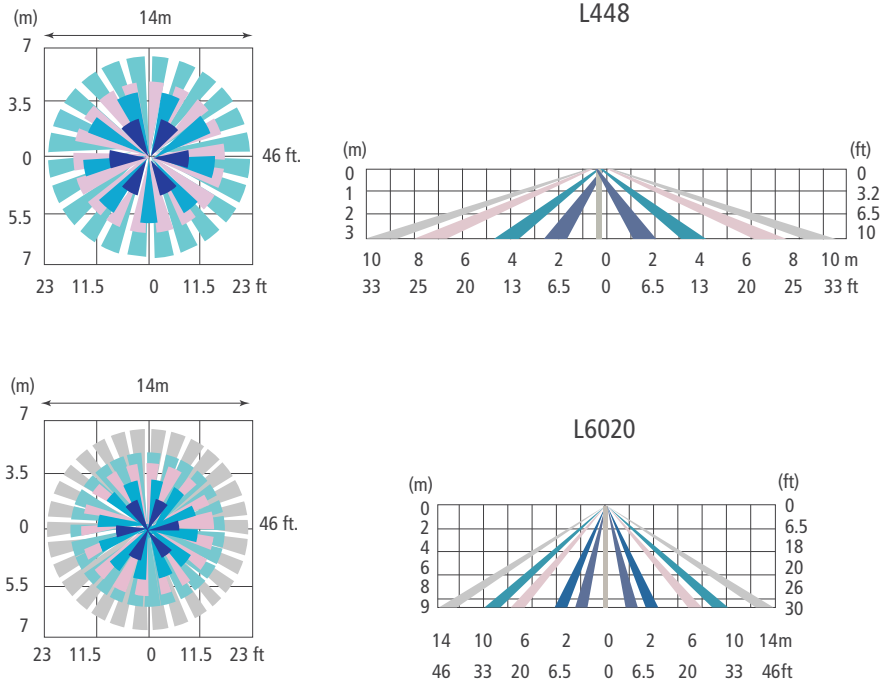
Board on Radio Grid (BORG)

- The BORG is a lighting controller integrated into a LED luminaire and is the centerpiece of the TL1000 system
- The lighting schedule and zone information is stored in local memory on each device, so TL1000's implementation of the lighting schedule and response to occupancy events are NOT impacted by a broken internet connection
- The BORG controls luminaire light output based on a host of configurable parameters such as: occupancy status, time of day, special events, and utility rate schedules
- Captures and calculates light level (ft-cd), occupancy event, and energy consumption (kW/hr) data



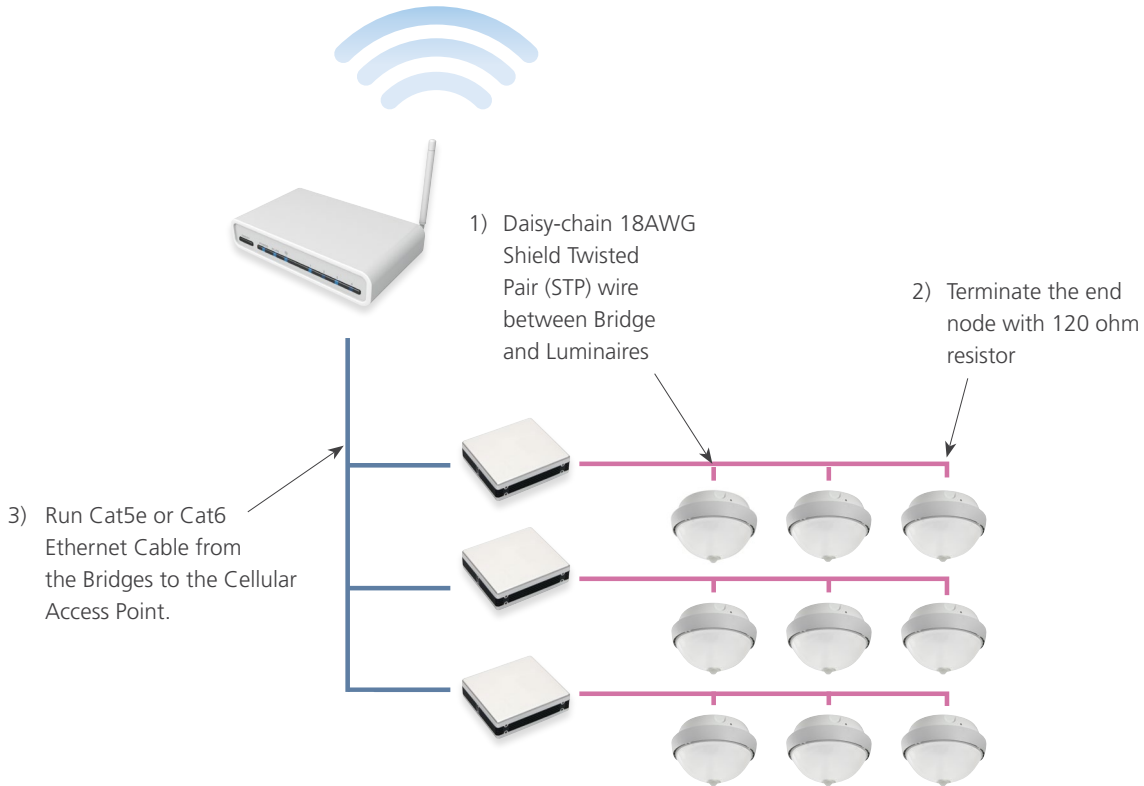
Lens Options

Multiple sensor lens options are available to provide 360 degree coverage at various mounting heights and coverage areas. Available lenses and their respective coverage area can be seen in the figures below:

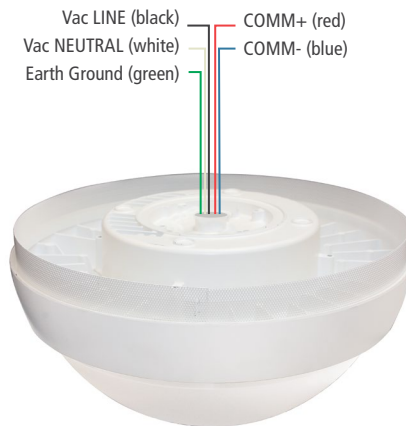


| Lens Option | Description |
|-------------|----------------------------------------------------------|
| L448 | 360° lens, maximum coverage 46' diameter from 8' height |
| L6020 | 360° lens, maximum coverage 60' diameter from 20' height |

4.0 Wiring Guide



NOTE: Communication wires can be chased through luminaire power conduit when utilizing Class 1 methods



EXAMPLE: TL1000 Device

5.0 **TL1000 Wired System Features**

Communication

- *2-wire bus node communication*
- *System connected to the Cloud*

Graphical User Interface

- *3D-graphical display*
- *Visual zone mapping*
- *Network mapping*
- *Site mapping*
- *Tiered administrative access levels*
- *Energy-savings display for public areas*

Configuration

- *Luminaire adaptive light output*
- *Zone overlap*
- *Demand response*
- *Luminaire locations with easy tablet commissioning*

Scheduling

- *Dawn to dusk programming*
- *Site-wide day and night scheduling*
- *Zone day and night scheduling*
- *Standard and peak energy scheduling*
- *Schedule exceptioning*

Measuring

- *Real-time recording*
- *Individual occupancy event recording*
- *Signal strength measuring and recording*
- *Light level*
- *Dim level*

Monitoring

- *Reports*
- *Energy consumption*
- *Lumen depreciation*
- *Alerts*



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