

# Ergolight Controls

## Specification Guide

# Ergolight Controls:

## A New Approach to Office Lighting and Control

### Workspace-Specific Lighting

Instead of following a uniform pattern, fixtures with Ergolight Controls are installed where the work is done—generally over individual workstations or defined visual task areas. While the two outboard lamps focus directly on the task areas, the single lamp up-lighting component indirectly lights the adjacent circulation areas. The results are fewer fixtures, reduced power requirements, reduced air conditioning requirements, and user-adjustable task-based illumination. In addition, it offers the possibility of workspace-specific control.

### Workspace-Specific Control

Fixtures with Ergolight Controls offer an integrated sensor combined with a simple network connection and gives users five types of lighting control:

- Occupancy Sensing — downlights are gradually dimmed and turned off in unoccupied workspaces
- Daylight Dimming — maintains user-selected task brightness level
- Scheduling — occupancy sensors can be scheduled to control task lamps during work hours and task and ambient lamps after hours
- Personal Dimming — from individual user PCs
- Load Shedding — system-wide dimming to reduce energy use when it costs the most

This workspace-specific approach to lighting and control typically reduces energy use by 60-80% compared to conventional T8 lighting systems.

**For more information on workspace-specific lighting and the resulting energy savings, please refer to the product brochure of your Ergolight Controls product.**

## Application Requirements

- Office Environments:
- Private offices
- Open-office cubicles
- Reception areas
- Conference rooms

## Room Requirements

- Ceiling height between 8' and 12'
- Lay-in grid ceiling (all types supported except concealed spline)
- 2'x4' or 2'x2' T-Bar grids

## Computer Network Requirements (only applicable to personal dimming control)

- Windows® operating system (Windows 2000 or Windows XP)
- TCP/IP-compatible network

## Other Requirements

### Electrical

- One power feed per fixture
- Emergency power feed for ambient lamp available, lamp will not have computer control
- Light switches are optional; all switching is performed by fixture's occupancy sensor or software controls
- System voltages: 120V, 277V or 347V (some 347V restrictions apply)

### Mounting

Several cable/pendant lengths are available. The following table defines recommended lengths based on ceiling heights:

| Ceiling Height  | Pendant/Cable Length |
|-----------------|----------------------|
| 8'-0" – 8'-6"   | 12"                  |
| 8'-6" – 9'-0"   | 15" - 18"            |
| 9'-0" – 10'-0"  | 18" - 24"            |
| 10'-0" – 12'-0" | 24"                  |

**Note:** Please see specification data sheets for ceiling compatibility graphics.

## Ergolight Controls Fixture Types

**Ergolight Controls:** Includes on-board motion and daylight sensors, independent dimming of uplight and downlight, PC control through network connection.

**Non-Controlled:** A fixture matching the aesthetic of a fully controlled fixture type but without integrated sensors or network controls. Several wiring options (including dimming) can be specified. See the specification data sheets for your Ergolight Controls fixture for further details.

## Fixture Placement and Orientation

### Guidelines

Use the following guidelines when laying out fixtures with Ergolight Controls on a workspace-specific basis. Note that there may be exceptions to these rules based on ceiling height, visual tasks, furniture layouts, etc. Please contact Ledalite for recommendations in unique situations. Assistance with photometric calculations is available from Ledalite as needed.

- One fixture per private office up to 10' x 10'
- One fixture per cubicle, sizes 7' x 8' up to 10' x 10'

- One fixture per two cubicles of sizes 7'x7' and smaller
- Circulation-area fixtures not needed if within 12' of an adjacent workspace fixture

**For specific photometric information, please visit Ledalite's website and download the photometric files for your fixture ([www.ledalite.com](http://www.ledalite.com)). Or, make a request to Ledalite's applications department to perform lighting calculations for you.**

## Fixture Placement

Fixtures can be placed anywhere in the grid ceiling, spanning either a 24" distance between T-bars (with the ceiling pan options) or a 4' distance (with the aircraft cable on ends) option. For 2'x4' ceiling systems using a ceiling pan, cross T-bars may be required for mounting fixtures oriented parallel to the 4' distance.

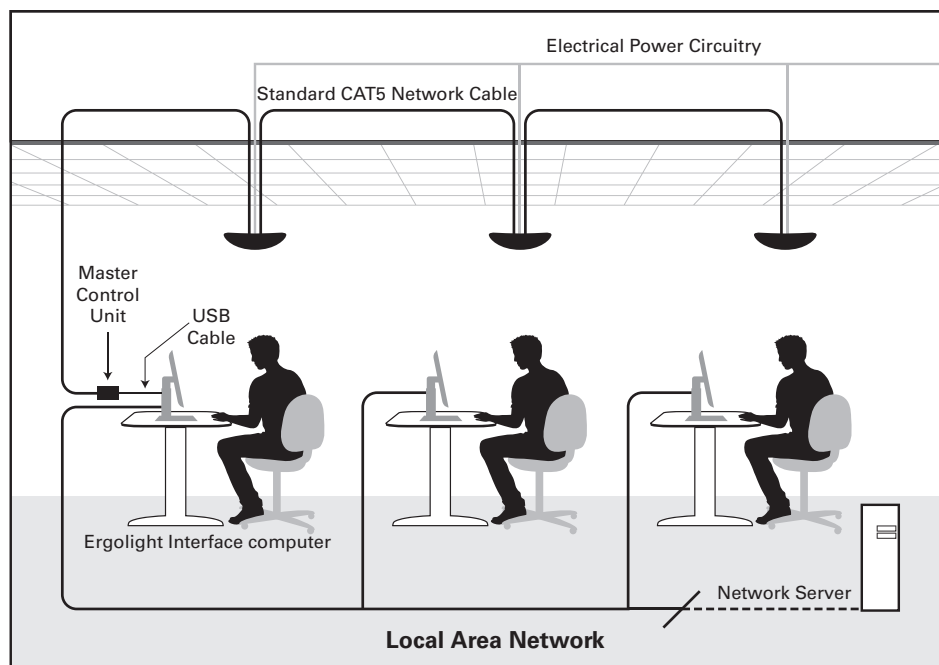
- Place fixture over center of cubicle (or over center of combined workspaces)
- Place fixture slightly off-center in private offices, mounting farther from the entrance

## Fixture Orientation and Alignment

For aesthetic reasons, all fixtures should be oriented in the same direction in a given room. Because the horizontal illuminance distribution is approximately symmetrical, it makes little difference in lighting performance how the fixtures are oriented. Although cubicles may not be uniformly aligned, fixture alignment may be achieved through minor adjustments in placement. To ensure linear alignment, it is recommended that fixtures be installed immediately adjacent to the nearest T-bar, although mounting in the center between T-bars is also feasible if the installer takes care to ensure alignment.

## Ergolight Controls Network Layout (only for fully controllable fixtures)

In addition to connecting the fixtures to the lighting power circuit, each fixture with Ergolight Controls must be connected to a lighting network—a daisy chain of up to 800 fixtures per MCU. The diagram below illustrates how the Ergolight network interfaces with the customer's local-area computer network (LAN) to enable PC control by fixture serial number.



# Ergolight Controls Network Configuration Options

Before an Ergolight network can be shown on drawings, the layout configuration option should be selected. If the customer will allow the Ergolight database file to be located in a shared location (file server or shared folder), then many advantages can be realized. Please note that Ergolight software does not need to be in a shared location, only the actual database file itself.

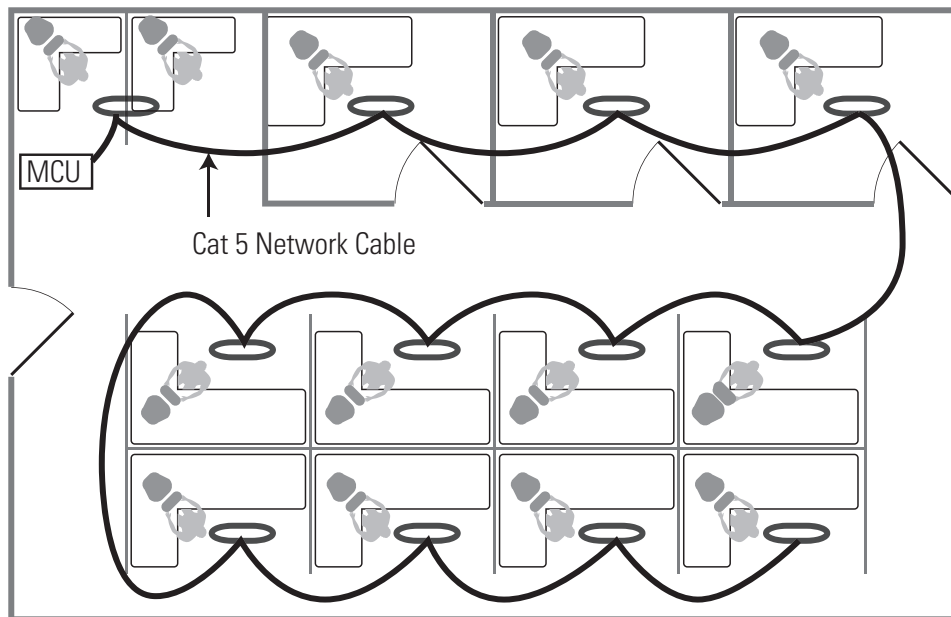
| Scenario:   | Shared Ergolight Database Location Available | Shared Ergolight Database Location NOT Available (database stored on Ergolight Interface computer) |
|---|--|--|
| Manager and Interface software may be operated on different computers | Yes  | No   |
| Personal dimming possible even when LAN server is down                | No   | Yes  |
| Multiple interface computers and networks supported                   | Yes  | No   |
| Maximum number of fixtures supported*                                 | Unlimited                                    | 800  |

\* 800 fixtures maximum per interface computer with attached MCU; 1 repeater required after every 150 fixtures (with maximum of 2000 linear feet of network cable between repeaters).

**Other alternatives may exist for setting up the Ergolight network. Consult Ledalite for additional support.**

## Defining the Ergolight Network Cable Route

The Ergolight Network is a single line, daisy chain style of network cabling (CAT5). The network starts with the Interface Computer where the Master Control Unit (MCU) is located and continues in series until the last fixture.



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Once the interface computer location is determined, the network routing will begin at that point. Note that for scenarios where the Ergolight database will not be in a shared location, the Interface computer will also be used for the operating the Ergolight Manager program, so the computer should be located in a space that is conveniently accessible by the manager; when the database is in a shared location, the Interface computer location(s) may be selected independently of the manager location.

Starting from the Interface computer location, the first segment of network cable should be routed through the wall to the plenum and connected to the first fixture. The other end of this cable should be terminated at a wall jack adjacent to the planned location for the interface computer. (The owner or a Ledalite representative will perform actual connections to the Master Control Unit and Interface computer.) Continuing from the first fixture on the lighting network, the remaining fixtures are connected into the daisy chain. To depict the routing of network cable between Ergolight fixtures on a layout drawing, a curved line is typically used

When laying out the network routing, please consider the following guidelines:

## Interface Computer

Before the lighting network route can be determined, the location(s) of Interface Computers must be determined.

## Floor Penetrations

If the project is a multiple story application the cable penetrations between floors must be determined.

## Cable Lengths

The standard length of modular network cable provided with each Ergolight Controls fixture is 15'. When more than 15' of network cable is required to connect adjacent fixtures, additional lengths of cables can be purchased. Ledalite offers longer cables (up to 200') as needed.

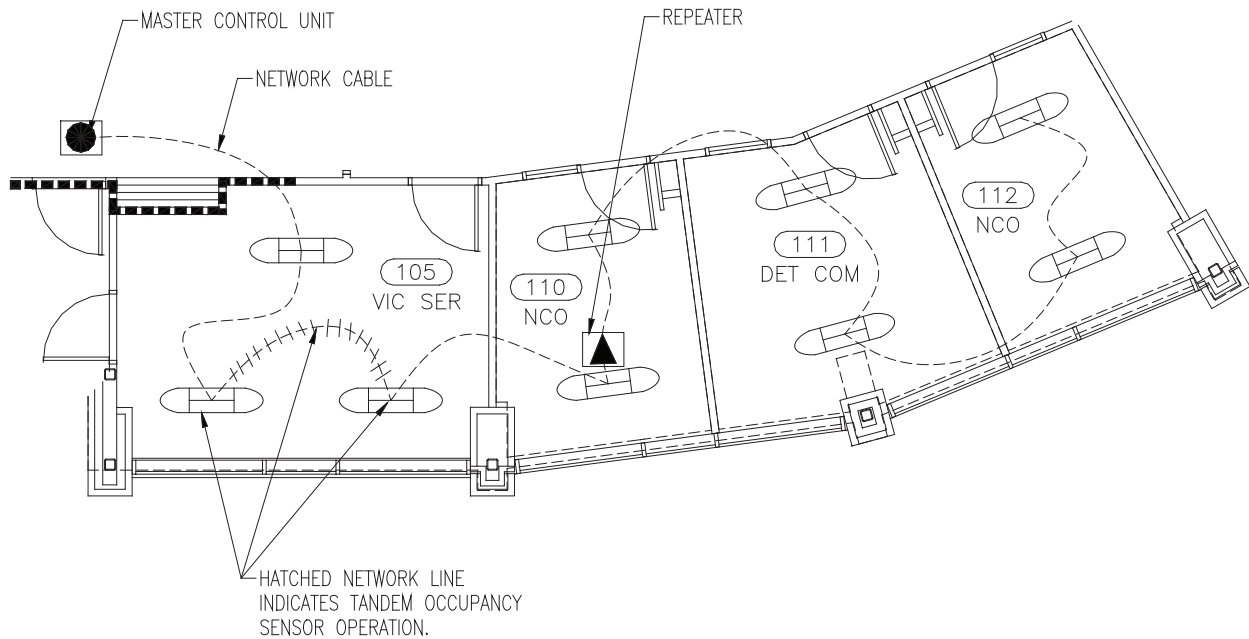
## Tandem Occupancy Sensors

In large private offices with more than one Ergolight fixture, tandem control by occupancy sensors is recommended (one occupancy sensor triggering up to 4 fixtures). In order to provide tandem control, the fixtures in a given room must all be in adjacent positions on the daisy chain. Similarly, if multiple Ergolights in a corridor are to have tandem occupancy sensor control, then the cable route must connect these fixtures together in sequence.

## Network Cable Location

Building code requires that network cables not rest directly on the T-bar; they can be loosely tie-wrapped to structures above the ceiling.

example lighting network plan drawing



## Additional Considerations for Retrofit Projects

To specify fixtures with Ergolight Controls in retrofit projects, the following additional considerations must be addressed:

- Specify matching ceiling tiles to replace troffers that are removed from service.
- When ceiling pan mounting options are used, specify number and type of matching cross T-bars for fixtures that are installed parallel to the long dimension in 2'x4' grid ceilings; if 2x4 troffers are removed from 2x2 ceiling grids, one cross T-bar will be needed for each 2x4 troffer that is removed.
- If the existing troffers were used for returning air to the plenum, then specify the number and type of return-air grills that will be used so that the return-air capacity (cfm) for the total number of installed grills is approximately the same as the return-air capacity (cfm) of the troffers removed from service.
- If the existing troffers were used for supplying air to the room, then specify the number and type of supply air diffusers that will be used to deliver approximately the same volume of supply air (cfm) as that previously delivered by the troffers.
- Identify the type of power circuit cables used for the existing lighting system; specify the type of cables that will be needed for extending power feeds to Ergolight fixture locations.
- Specify the method to be used for terminating unused power feeds; typical methods include termination in junction boxes or removal of power feeds.
- Specify method and responsibility for disposal of existing fixtures, ballasts and lamps.
- The approximate location and orientation of each fixture may be shown on furniture plans. The cable layout can be hand-drawn.

- To specify the precise location and orientation of fixtures in an existing ceiling, consider applying stickers to the T-bar surfaces. This procedure ensures a uniform approach to positioning. To locate fixtures above standard cubicles, stand in the center of the cubicle, and look up; place the sticker to locate the fixture in the position over your head. Within a given room, make minor adjustments if possible to align fixtures along the same T-bar line.

## Technical Specifications

Please refer to complete specification data sheets, available from Ledalite or at [www.ledalite.com](http://www.ledalite.com).

**For additional Ergolight support and resources, please contact Ledalite at 1-604-888-6811.**