



Echelon Based System



**General
Installation
Instructions
Maintenance
Guide**

120-38379

SPECIFICATIONS

ECHELON Communication Protocol LonWorks
 Supply Voltages per selected power supply
 Power Supply 120, 208, 277, 347, 480VAC

Accessory Power Output 800mA @ 24VDC/VAC
 HID Relay Load Ratings @ 120VAC @ 277VAC @ 347VAC @ 480VAC
 UL Listing - CSA Certifications
 20A 347VAC
 2400W 120VAC "T"
 20A 300VAC "F"
 20A 480VAC "F" (2 poles relay 480v only)
 UL Endurance Test 150,000 cycles

Output SPST 1P or 2P Contact Ratings
 More than 30,000 operations avec 20A load, 2000A inrush @ 20 times/min switch speed

Environmental

Maximum Ambient Temperature 20°F to +120°F (-28°C to +50°C)
 Maximum Humidity 5% to 90% RH, non-condensing
 Type/Nema 1 or on request 12, 4 and 4X

Printed in Canada

DOCUMENT'S HISTORY

Review	Date	Description	Authors
Release	July 2009	Installation Guide writing K8	Marcel Landry
A	September 2009	General Revue DCI-116	Marcel Landry
B	October 2011	Page number correction	Natasha Brousseau
C	April 2012	Adapted to the KC600 / remove all reference to WR-6161k-84 relay	Jean-Michel Tremblay

DOCUMENT'S APPROBATION

Verification:	Jean-Michel Tremblay	
Reviewed and Approved:	Marcel Landry	
Reviewed and Approved:	Mario Lehoux	

READ THOROUGHLY BEFORE INSTALLING

Make all electrical connections in accordance with the National and Canadian Electrical Code and any applicable local code requirements. Verify that supply voltage is correct by comparing it to nameplate.

Before installing the Lighting Control Panel, read the instructions completely. If you have any questions, call our Service Team at: in Canada 800-463-4480; in USA 888-235-7506.



WARNING: Danger of electrical shock or injury. Turn OFF power service to the line side of the Panel board or switchboard before working inside the equipment or removing any component. Equipment is to be installed and maintained by properly trained and qualified personnel only.



Important Installation Notices

- All power must be turned off prior to wiring, installing or servicing.
- More than one disconnect may be required to de-energize power to the Lighting Control Panel.
- External circuit protection to the LI is required (e.g., circuit breaker).
- Installation shall be in accordance with all applicable regulations, wiring practices, and codes.
- Care should be taken to separate high voltage power from low voltage (Class 2) control wiring.
- Do not energize wiring until the unit is fully assembled and connected circuits have been tested and found to be free of electrical shorts.



WARNING

Improper installation or connection of this relay panel may result in serious personal injury and/or damage to the panel and other devices



SAFETY PRECAUTIONS

- Only qualified persons familiar with the construction and operation of this equipment should perform work described in this set of instructions. Such work should be performed only after reading this complete set of instructions.
- Follow safety related work practices, as described in NFPA 70E at all times.
- Hazardous voltages in electrical equipment can cause severe personal injury or death. Energizing this equipment for the first time after initial installation or maintenance is potentially dangerous. Inspection and maintenance should be performed on this equipment power has been cut off, disconnected, and electrically isolated so that no accidental contact can be made with energized parts.
- Some types of electrical equipments will cause harmonics in the electrical system which may result in overheating. Consider this condition when determining this equipment loading, as possible de-rating of equipment may be necessary.



IMPORTANT

The information contained herein is general in nature and not intended for specific application purposes. It does not relieve the user of responsibility to use sound practices in application, installation, operation, and maintenance of the equipment purchased. Gentec Inc. reserves the right to make changes in the specifications shown herein or to make improvements at any time without notice or obligations. Should a conflict arise between the general information contained in this publication and the contents of drawings or supplementary material or both, the latter shall take precedence.

Qualified Person

For the purpose of this manual and product labels, a qualified person is one who is familiar with the installation, construction, operation or maintenance of the equipment and the hazards involved. In addition, this person has the following qualifications:

- (a) Is trained and authorized to de-energize, clear, ground, and tag circuits and equipment in accordance with established safety practices.
- (b) Is trained in the correct care and use of protective equipment such as rubber gloves, hard hat, safety glasses or face shields, flash clothing etc., in accordance with established safety practices.

SIGNAL WORDS

The signal words “Danger”, “Warning” and “Caution” used in this manual indicate the degree of hazard that may be encountered by the user. These words are defined as:



Danger

- Indicates an imminently hazardous situation which if not avoided, will result in death or serious injury.

Warning

- Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



Caution

- Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

Dangerous Procedures

In addition to other procedures described in this manual as dangerous, user personnel must adhere to the following warnings:



- **Danger! High voltage.** Qualified personnel only. Lock off all power to this equipment before working inside. Always work on de-energized equipment. Always de-energize equipment before performing any tests, maintenance or repair.

- **Warning!** Always perform maintenance on the interrupting device after the closing mechanism(s) are discharged.



- **Caution!** Always let an interlock device or safety mechanism perform its function without forcing or defeating the device.

- **Caution!** Hydrocarbon spray propellants and hydrocarbon compounds will cause degradation of certain plastics. Contact your local Gentec Inc. representative before using these products to clean or lubricate components during installation or maintenance.

INSTALLATION - INSTRUCTIONS

1.0 Preparation for Installation

Prior to installing the panel, study this instructions manual, the site drawing package and additional documentation such as general arrangement, one-line diagram, schematic drawings, wiring diagrams, panel arrangement and electrical bill of material.

Installation should be in accordance with the National Electrical Code, NEMA and UL Standards. Unless the panel has been designed for unusual service conditions, it should not be located where it will be exposed to ambient temperatures above 40 °C (105 °F), corrosive or explosive fumes, dust, vapours, dripping or standing water, abnormal vibrations, shocks or tilting, or other unusual operating conditions.

For installation/replacement of lighting control panel, the following conditions must be met:

1. All branch circuit relays must be one and two poles 20 amps.
2. The panel gutter must be clear, only wires for electrical loads are allowed in this area.
3. Sub-feed area is clearly designated for the controller card.

2.0 Inspection and Testing

2.1. Overview

Before the equipment is energized, it must be thoroughly inspected and tested. Any deviation must be corrected prior to energizing.

2.2. Inspection

Check the following items to ensure:

- A. All mechanical connections are tight, as factory connections may loosen during shipment and storage.
- B. All accessible electrical connections are tightened to the torque specifications on the panel labelling.
- C. All bolt-on screws connecting relays are properly installed and tightened.
- D. Connections between relays and breakers are properly secured.
- E. Connections between electronic board's connectors and data rails are secure and properly oriented.
- F. Both ribbon cable connections between data controller I/O board are properly secured and oriented.
- G. All blocking supports and packing materials have been removed from component devices and the lighting panel.

- H. All ground connections are properly made (Note: ground wire must be installed after the panel box is mounted on the wall).
- I. All foreign materials have been removed from the panel and enclosure before installing the dead front and trim.
- J. Before energizing – Dead front is properly aligned and securely installed.
- K. Before energizing – Trim is properly mounted and securely installed.

2.3. Testing

Perform the following tests prior to energizing the panel:

- A. Exercise all relays.
- B. Relays can be manually closed to allow circuit testing prior to commissioning the controller.

2.4. Energizing

- A. Panel board dead front and trim must be installed before energizing.
- B. To minimize the risks of injury or damage, there should be no loads on the relay panel when it is energized.
- C. The relay panel should be energized in sequence, starting at the source end and working towards the load end. In other words, energize the main devices, then the feeder devices, and then the branch circuit devices.
- D. After all upstream devices have been turned on, loads such as lighting circuits may be turned on to verify that the system operates as intended.

System Diagnostic Test

For controllers without touch screen (I/O Controller) – A computer with the Kameleon software configuration tool is required to be connected to perform the system diagnostic test. Refer to the K8 “Controller User Guide” for more information on the configuration tool program. Refer to the Controller instructions Manual.

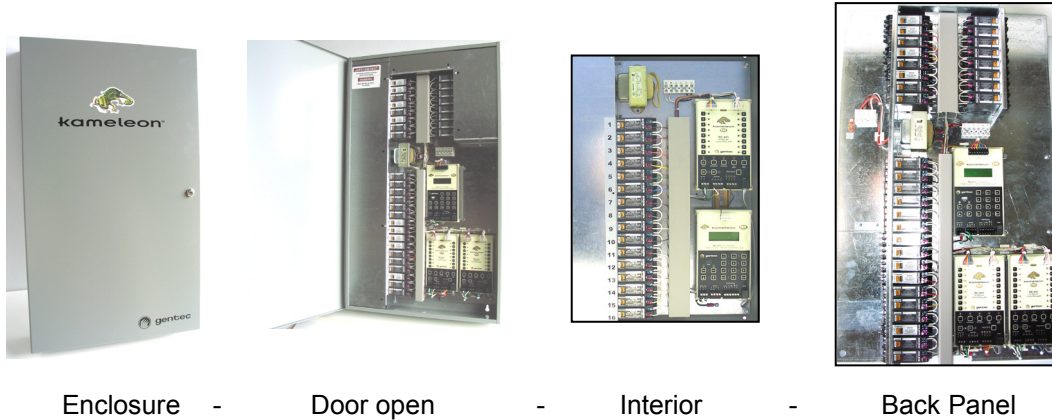


Echelon Network
Interoperability System



3.0 Product Description

The Kameleon K8 Lighting Control System series are a relay based automatic lighting control panel system designed to meet the requirements of any commercial or industrial applications. The panels activate the lighting through automatic scenarios, time schedules, photocells and occupancy controlled switches. A network K8 panels can also be controlled from a time clock, or building management system (BMS), or by a Kameleon central software/computer.



As a minimum, each panel will require one each of the following components:

- Enclosure
- Cover
- Interior assembly

Depending on the functional capabilities ordered, the interior may include the Group Switching card, Automation card, and automation modules such as a clock or other interface module. The panel may also be equipped with a network interface such as a Communications, LonWorks (K8 series), so that the panel can be included in a network with other lighting control panels or building control system.

The panel interior assembly provides isolation between the high and low-voltage sections of the panel, as well as the mounting frame for relays, the power supply and the circuit board assemblies. The separate interior assembly protects the low voltage wiring and components while allowing easy user access to a time clock or other electronic modules such as a BMS interface, or the communication module. Inside the low voltage area are LEDs for visual indication of relay status, plus manual push-buttons (over the relays) to turn individual relays on or off.

After installation and set up, a secure outer cover, when closed, offers protection from the high voltage area. The following page shows a photograph of a fully assembled relay Kameleon Lighting Control panel that shows installed components for reference. Note that not all of the components shown may be fitted in every Kameleon Lighting Control panel depending on the application.

4.0 Setup

4.1. Mount the Lighting Control Panel Enclosure

Attach the enclosure to the wall. The enclosure should be level, plumb and rigidly installed. Refer to the instructions provided with the enclosure for flush or surface mounting procedures.

Determine the appropriate wire entry locations. Make sure that all line and low voltage wiring entry locations are confined to the appropriate compartments as shown in the figure below. Do not run low voltage wiring with line voltage or power wiring.

Drill or knock out openings to bring cable conduit into the enclosure.

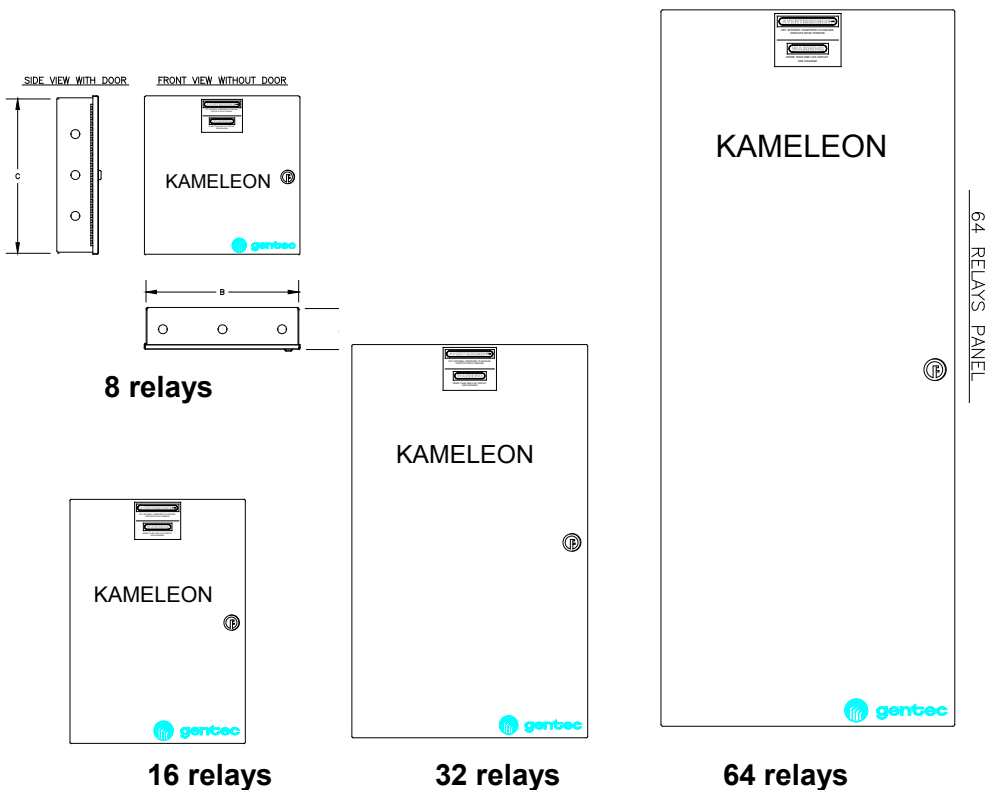


Figure 2: Enclosure Dimensions for K8-8PA, K8-16PA, K8-32PA AND K8-64PA

Model #	Height		Wide		Deep		Weight	
	inch	mm	inch	mm	inch	mm	lbs	kg
X series								
K8-8PA	15	381	15	381	4	101	26	12
K8-16PA	23.3	592	15	381	4	101	42	19
K8-32PA	33.5	850	20	508	4	101	83	38
K8-64PA	49.2	1250	20	508	4	101	140	64

Enclosures are available in type 1 standard type 12, 3R 4X on request Surface or flush mount

- CAUTION -
OBSERVE HIGH AND LOW VOLTAGE SEPARATION WHEN ROUTING CONDUIT AND CABLES

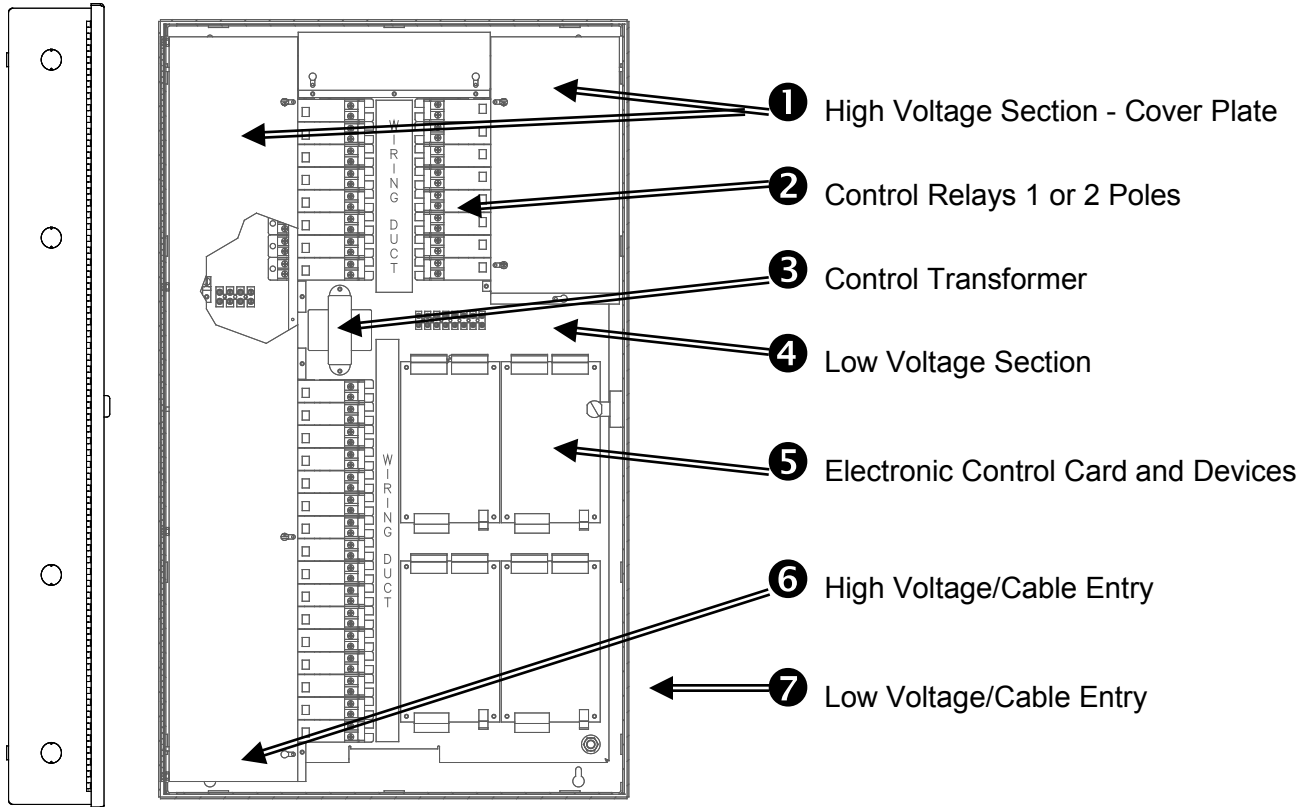


Figure 3.0

4.2. Install the Lighting Control Interior

Do not install the interior assembly until after the LCP enclosure has been securely mounted to the wall and the conduit/wiring holes have been drilled or knocked out.

- a. Place the interior in the enclosure and align the interior with the studs provided in the enclosure.
- b. Attach the interior assembly to the back of the enclosure using the four sets of nuts and washers provided.
- c. After all wiring is completed; fixed the cover according to the instructions provided with the enclosure.

4.3. Connect the AC Power Supply to

4.3.1. Power Source

The LCP has several power supply options that allow it to operate with 115VAC, 240VAC, 277VAC or 347VAC line voltage. The Class 2 control transformers with either 50 or 60 Hz have internal over-current protection.

- ❶ Read and remove the CAUTION label covering the control transformer input terminals.
- ❷ Note that there are different terminals for supply voltage input. Wire to ONLY ONE of these terminals. Match your input voltage to the correct terminal.

CAUTION
VERIFY WHETHER YOUR SUPPLY LINE VOLTAGE IS 115VAC, 240VAC, 277VAC, OR 347VAC AND THAT THE POWER SUPPLY IN THIS PANEL MATCHES THAT LINE VOLTAGE. WIRING TO THE INCORRECT VOLTAGE TERMINAL MAY RESULT IN DAMAGE TO THE POWER SUPPLY AND/OR THE PANEL, AND WILL VOID THE PRODUCT WARRANTY.

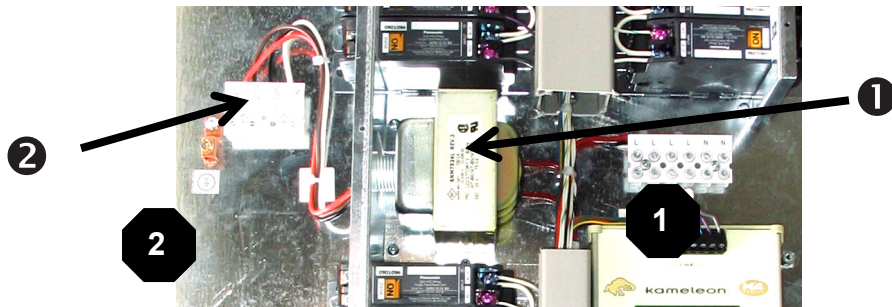
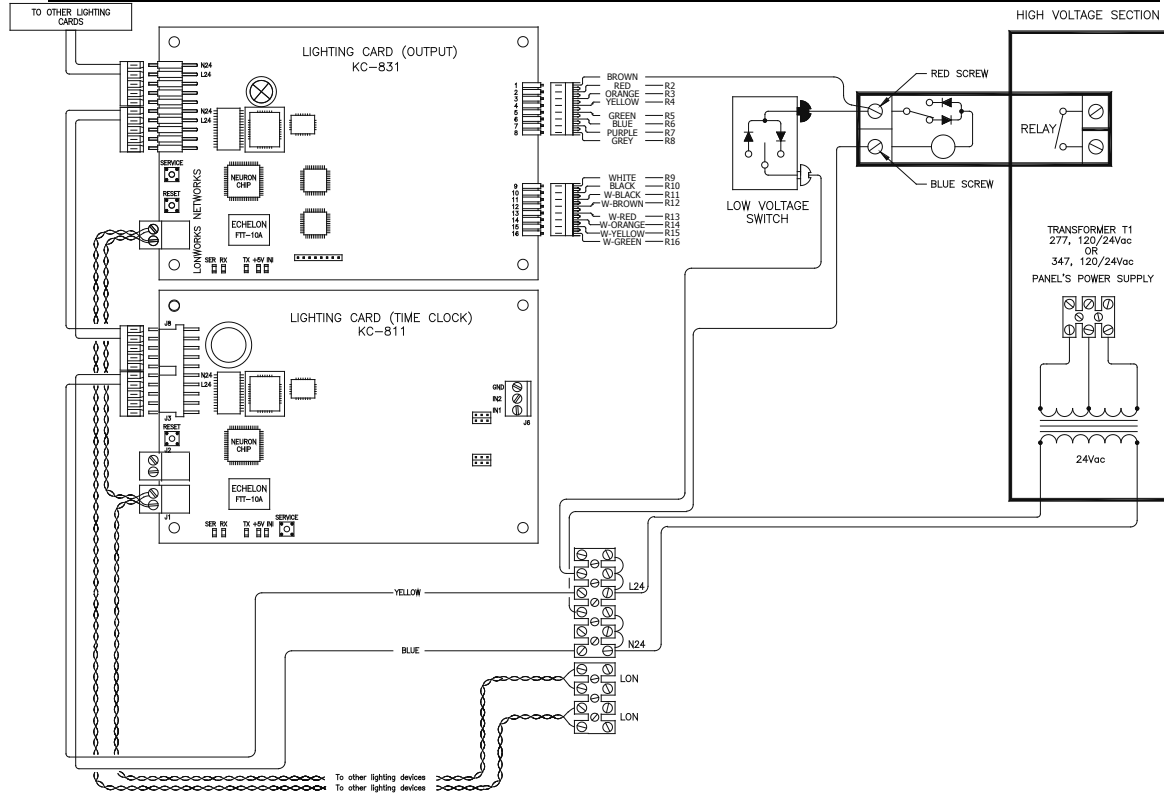


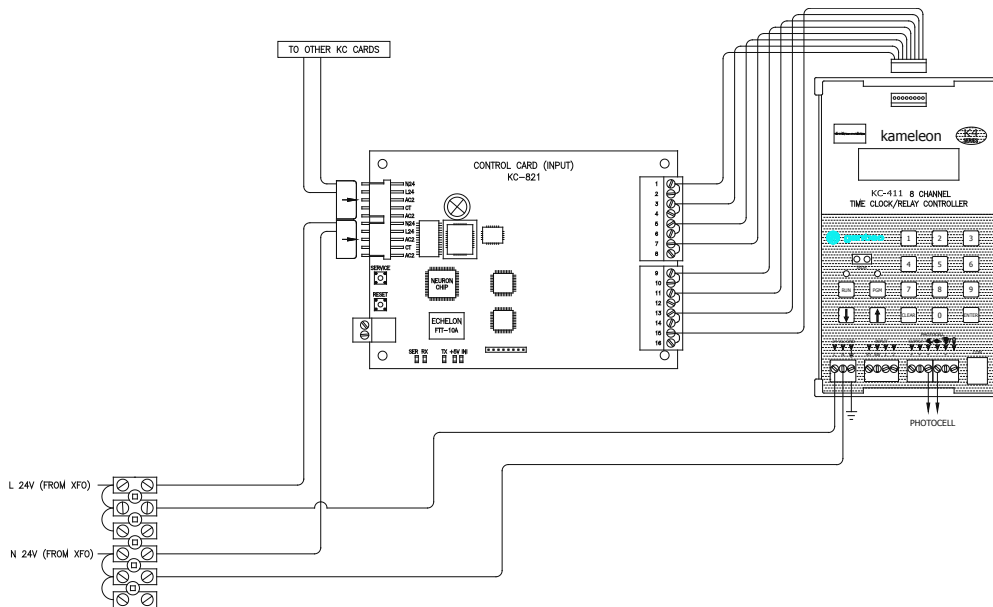
Figure 4.0

Time clock integrations:

➤ KC811 Astronomic Network Time Clock



➤ KC411 Field Programmable Astronomic Time Clock



4.32 Connect Load and Line Voltage to Relays

Before making any connections to the relays, make sure that none of the load circuits are shorted. Route conductors from the circuit breaker through each HID relay's SPST output terminals, and from there to the loads. Confirm that each circuit is wired to the relay specified in the electrical construction drawings and relay schedule forms provided with the panel.

4.33 Power Up and Test Relays

1. Apply power to the lighting control panel/control transformer **ONLY**. Do NOT apply power to the controlled circuit loads.
2. As shown in the illustration below, locate the manual relay control devices on the relay. Activate the relay control devices to switch manually it ON/OFF. The relay should "click" and should change state. The activator device will pass from yellow to red indication status.
3. Confirm the operation by measuring the continuity at the line voltage terminations of each relay.
4. Being careful not to touch any line voltage wiring, activate manually each relay ON/OFF again and confirm that each relay controls the appropriate load.

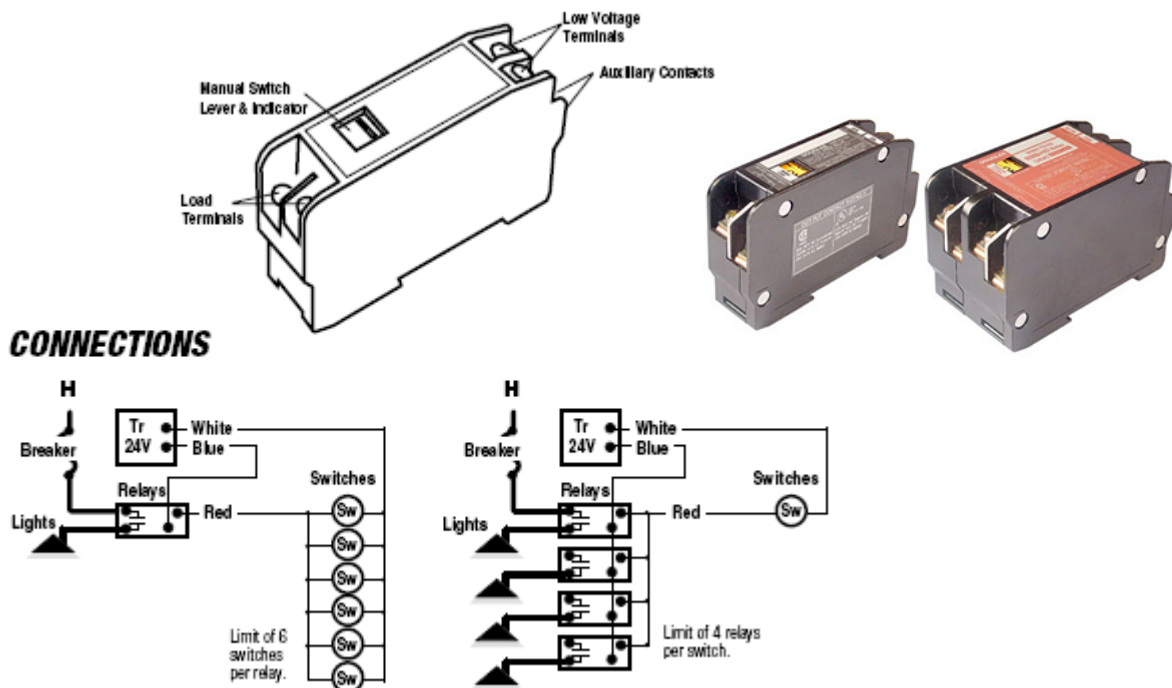


Figure 1 - Interrupteur Assemblé 1

5.0 Low Voltage (Class 2) Wiring

The low voltage (Class 2) section of the panel provides a number of terminal connections for a variety of optional switches and other devices. See Figure 5.1 for location of the low voltage section of the panel. All wire entering this section of the panel must be Class 2 only. Do not allow line voltage conductors to pass through the Class 2 section of the panel for any reason.

An individual relay can be controlled from a switch or sensor by hardwiring it to the corresponding connector on the relay driver card (see Figure 5.2 for locations).

Alternatively, several relays can be grouped together so that they can be controlled from a single switch or sensor that is hardwired to the group switching card (see the shop drawing for the project information). These groups are often referred to as “group channels”. A group of relays is assigned to a group channel via group controller. Up to 8 groups labelled 1 through 8, are available with a single group switching card (refer to the K4, K6 or K8 instructions manual). Up to 16 groups are supported for 32-relay panels equipped with two group switching cards.

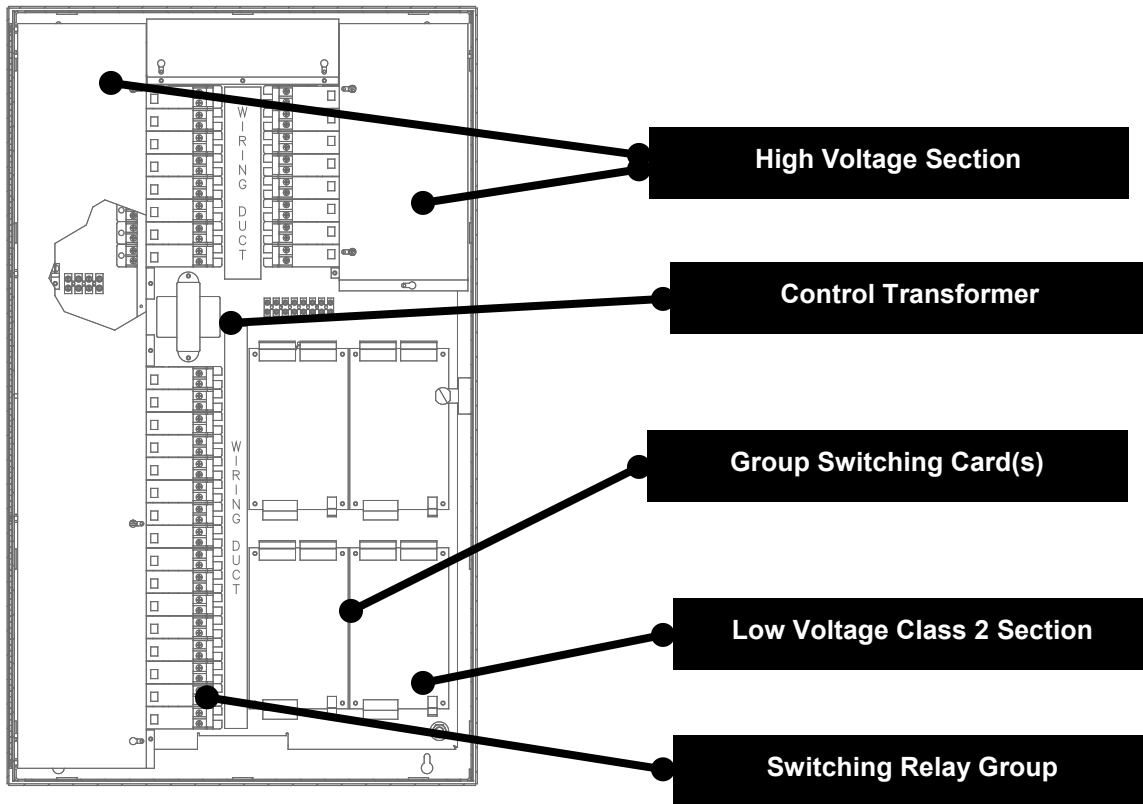
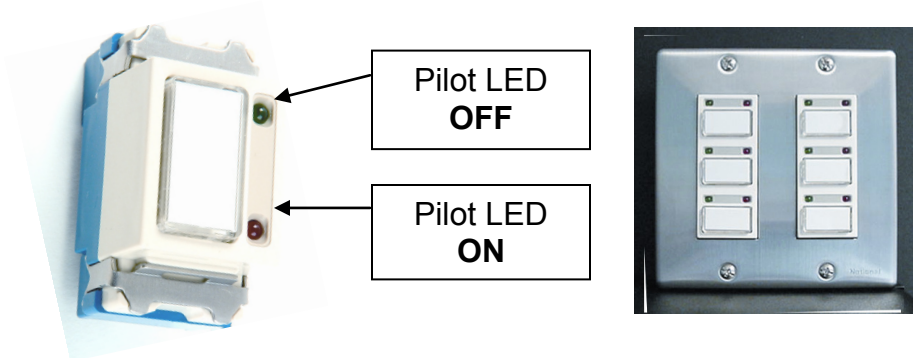


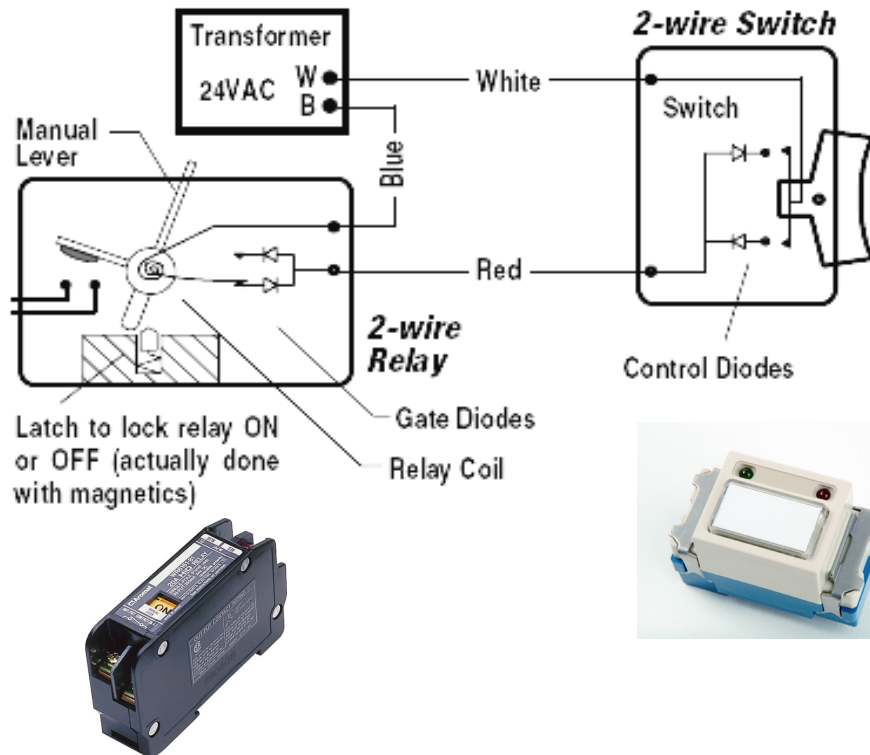
Figure 5.1

5.1. Switches with Pilot Lights

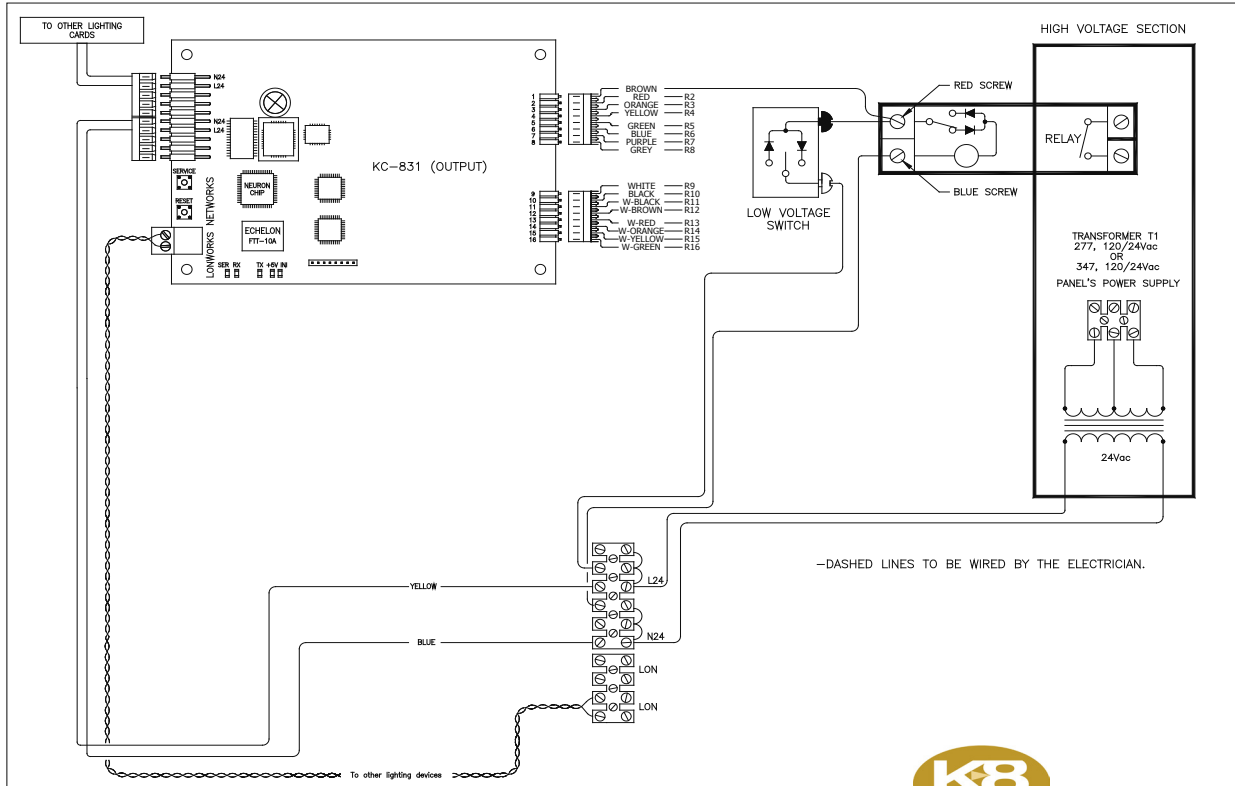
1. The “W” (white) terminal on the switch input terminal blocks supplies 24V rectified for use with pilot light switches. Voltage is present when the associated relay is ON, contact factory for configuring the panel for use with switch pilots requiring other voltages.



Internal Circuit Details **2-wire Relay / 2-wire Switch**



- On each relay card, select the relays to be controlled. If a relay was previously “smartwired” to the channel input selected, the LED will be flashing, otherwise the LED will be off.



5.2. Group Switching Card

The Group Switching card (Figure 5.2) provides six channels (A-F), which may be wired to relays within the panel. Channels are used to group relays for common control. When an LI panel includes an automation module (Network Clock or BMS Interface Module), turn to the installation instructions for that automation module and complete the documentation before wiring any relays to channels.

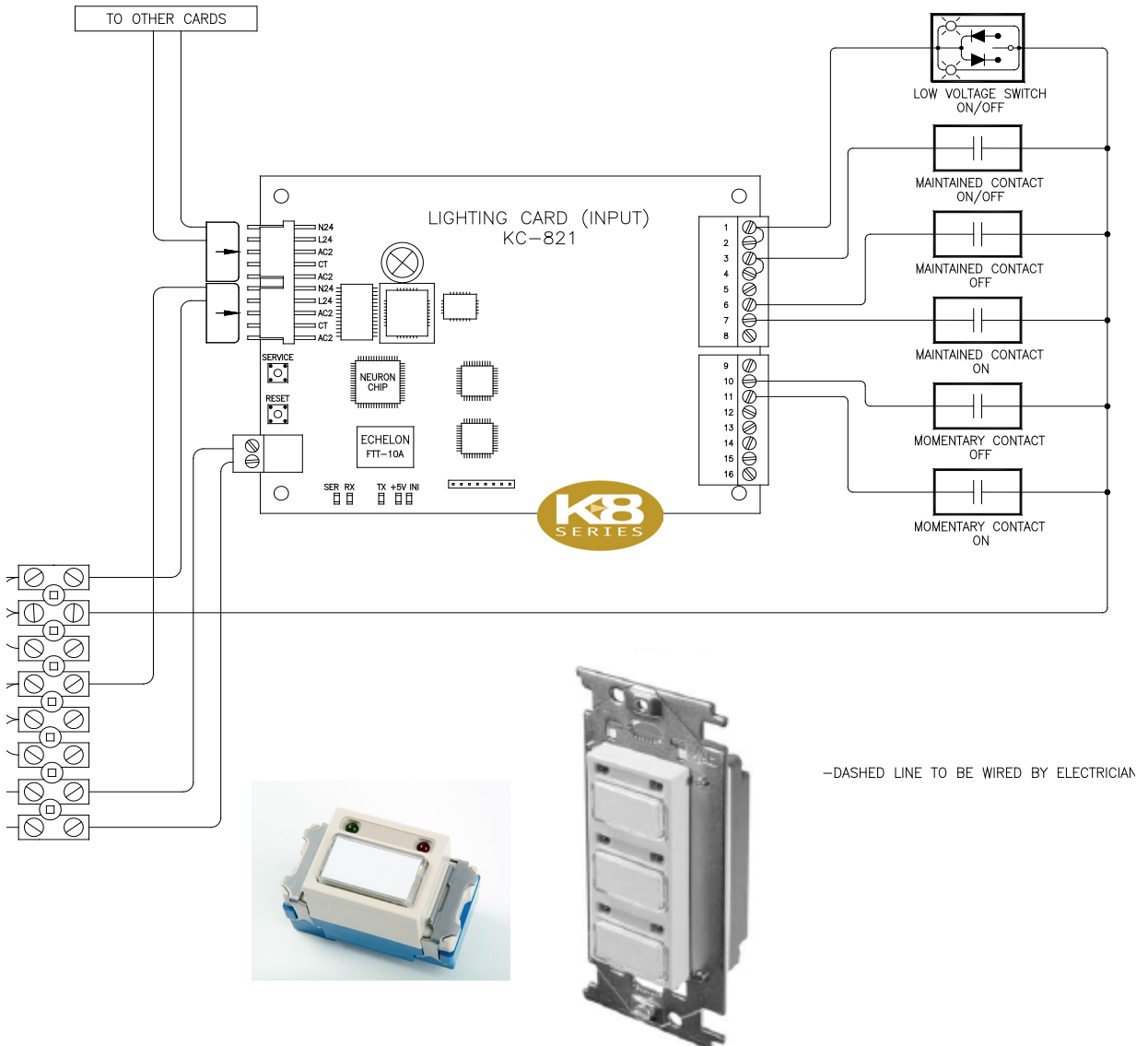


Figure 5.2

5.3. Occupancy Sensor

LCP switch inputs are designed to automatically sense the connection of an occupancy sensor.

The operation of the input will configure for proper operation as soon as the sensor activates the input for the first time. Operation of the occupancy sensor will be determined by the occupancy state of the relay or channel it is controlling. During occupied periods the sensor will turn lighting ON when motion is detected but will not turn the lighting OFF while the relay or channel is in the occupied mode. During unoccupied periods, the sensor will operate normally turning the lighting ON and OFF based on motion detected.

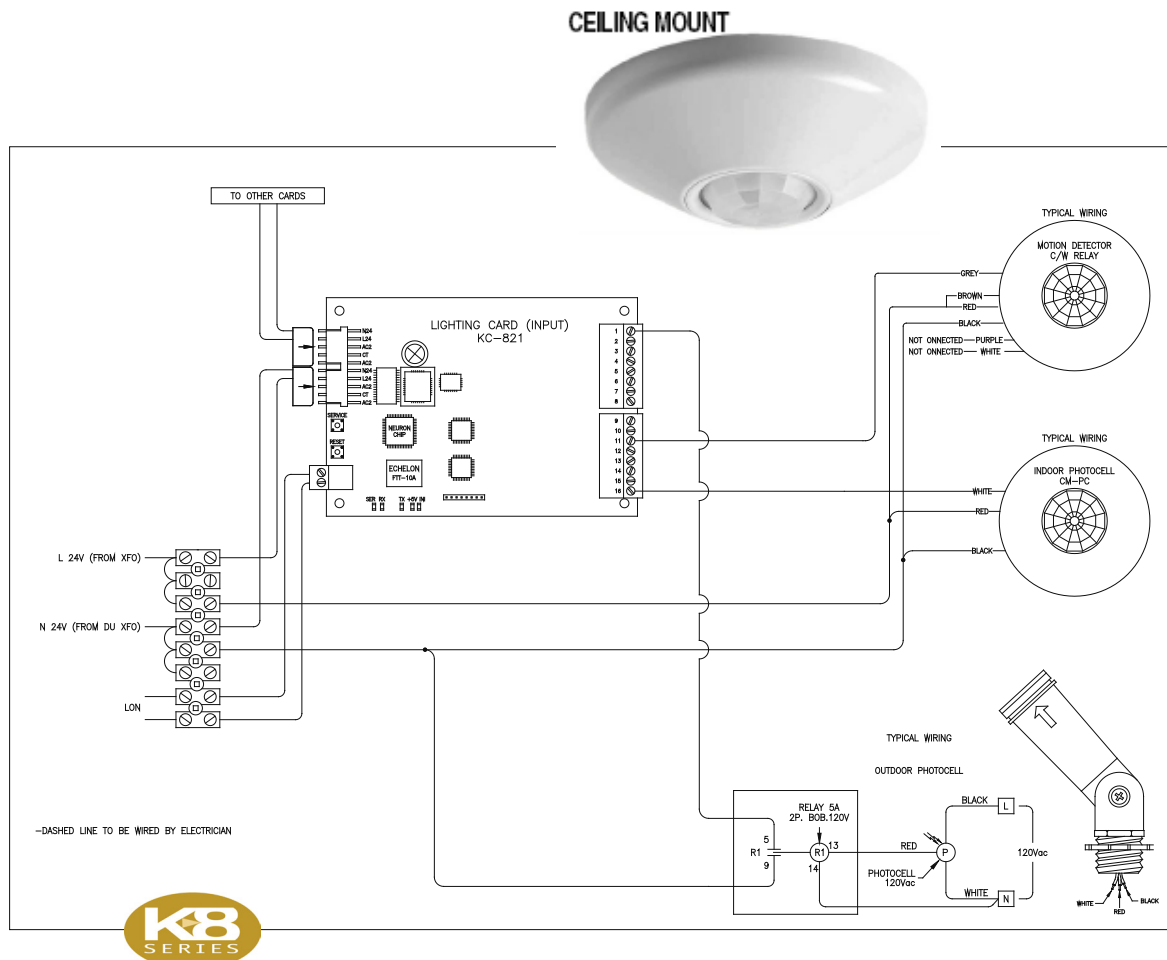
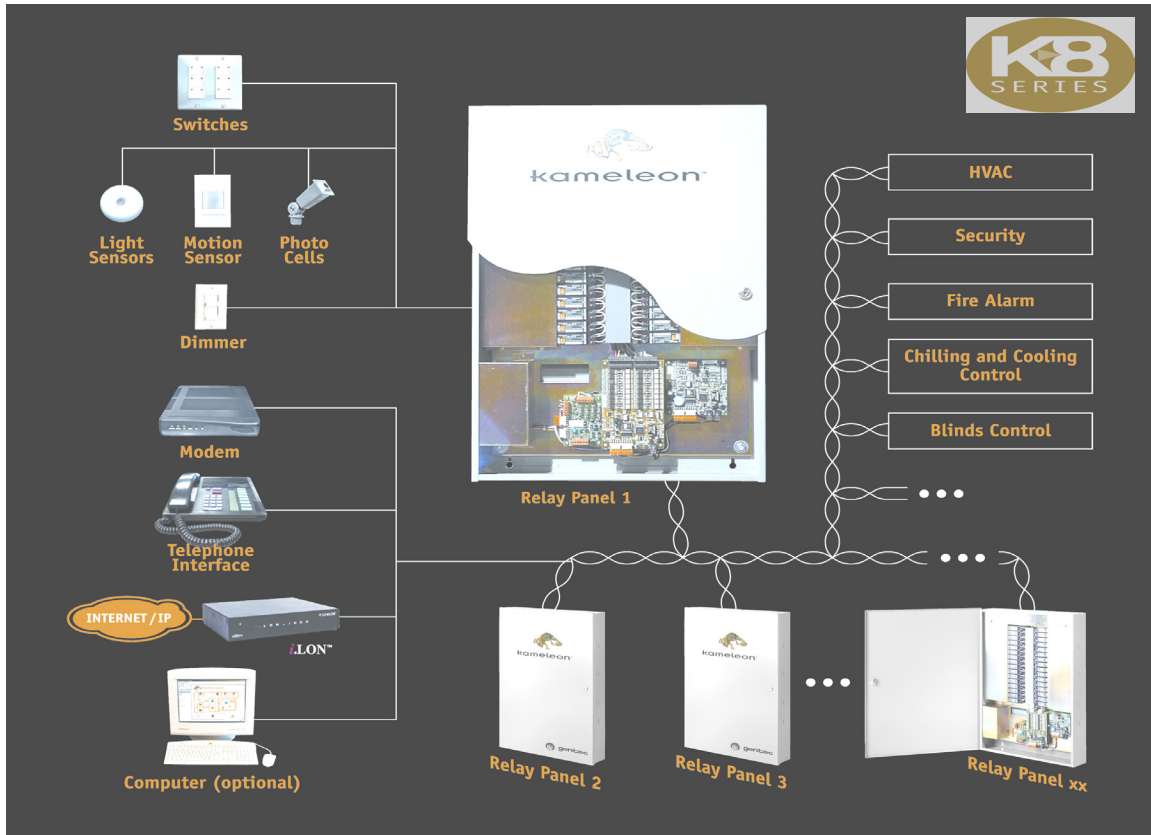


Figure 5.31

6.0 Lighting Integrator Panel with the Native Echelon

LCP panels with the Native Echelon option will have the Network card installed (see Figure 6.0).



The preceding sections covered the general installation procedures for the K8 Lighting Integrator panel. The following sections will be specific to the various optional configurations of the K8 panel. Use the K8 guide below to identify the configuration then proceed to the applicable section or sections to complete the installation. Please refer to Instructions Manual # 120-19260D.

6.1. Automation Level

These panels will use optional modules to provide basic automated lighting functions. These systems will have the Automation Card installed (see Figure 7.1) and may include either the KC811 Network Clock, KC821 BMS Interface, or the KC831 Automation output relay card control. Automation Level systems may also include in option the photocontrol and the KC-TI Telephone Control modules or any other gateway networking modules. If the system is to include more than one lighting control panel, it will require installation of the communication twisted pair cable over each panel and devices.

6.2. Complete Centralised Control Level

These systems will use the K8 Kameleon software running on a personal computer to download programming and provide sophisticated lighting control functions. K8 panels will have the complete control card installed on LonWorks base (see Figure 7.0).

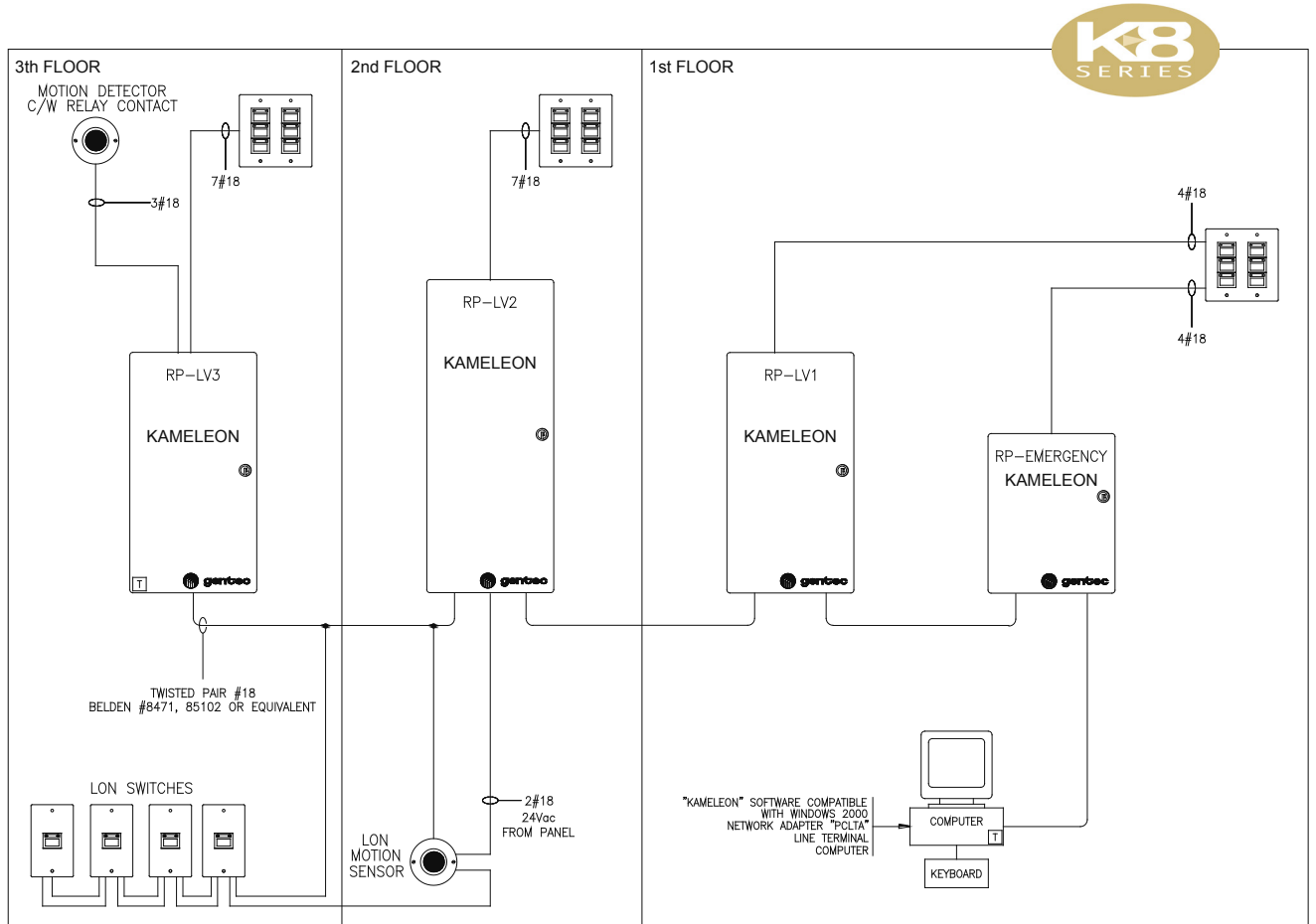


Figure 6.2

6.3. Dataline Switch Support

LI panels configured for use with HDLS series digital Dataline switches will include the automation card (see Figure 6.2). These components require installation of the lighting control Local Dataline.



WIRING CARDS CONFIGURATION IN K4, K6 and K8 series

Each card has a possibility to be installed with other cards for a control lighting applications. The following table will show the cards having the matching possibility for each K series. A number of electronic cards per series grouping/wiring should change base of the number of relay to control per panel (8, 16, 32 or 64 relay panel configuration). Refer to the back panel assembly for the electronic card arrangement and location.

TABLE "A1"

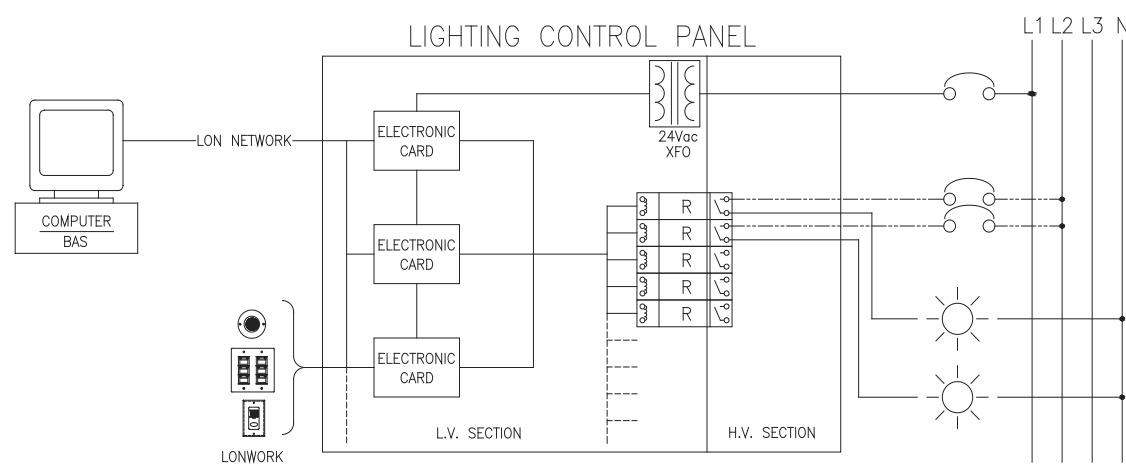
Table of Wiring of Electronic Control Cards for K series				
TYPICAL WIRING DIAGRAM - Lighting Control Panel				
				
Electronic Cards	K4 SERIES	K6 SERIES	K8 SERIES	K8 DIMMING
KC401	▲	▲		
KC411	▲		▲	▲
KC601		▲		
KC600		▲		
KC621		▲		
KC631		▲		
KC811			▲	▲
KC821			▲	▲
KC831			▲	
KC832			▲	
KC833			▲	
KC834			▲	
KC841			▲	▲
KC842				▲
KC843				▲
CDA	▲	▲	▲	▲
XFO - Control	▲	▲	▲	▲

TABLE "A2"

Table of Number of Electronic Control Cards for **K** series

Electronic Cards	K4 SERIES				K6 SERIES				K8 SERIES				K8 DIMMING
	8	16	32	64	8	16	32	64	8	16	32	64	16
Cabinet...	8	16	32	64	8	16	32	64	8	16	32	64	16
KC401	1	2	3	4	1	2	3	4					
KC411	1	1	1	1					1	1	1	1	
KC601					1	1	1	1					
KC600					1	1	1	1					
KC621					3	4	4	4					
KC631							1	3					
KC811									1	1	1	1	1
KC821									1	1	2	3	1
KC831									1	2	3	4	1
KC832									1	2	3	4	
KC833									1	2	3	4	
KC834									1	2	3	4	
KC841											1	1	4
KC842									1	1	1	1	1
KC843									1	1	1	1	1
CDA	1	1	1	1	1	1	1	1	1	1	1	1	1
XFO - Control	1	1	1	1	1	1	1	1	1	1	1	1	1

7.0 Maintenance

For equipment maintenance procedures, refer to the latest edition of NEMA Standards Publication PB1.1 “General Instructions for Proper Installation, Operation, and Maintenance of Panel Boards Rated 600 Volts or Less” which is shipped with the panel and also available on the NEMA web site (www.nema.org).

This checklist does not represent an exhaustive survey of maintenance steps, but is necessary to ensure safe operation of the equipment. Particular applications may require further procedures. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser’s purposes, refer the matter to the local Gentec Inc. sales office.

Dangerous voltages are present in the equipment which can cause death, serious injury or property damage. Always disconnect and lock off all power to the equipment before maintenance. Maintenance should be performed only by qualified personnel.

The use of unauthorized parts in the repair of the equipment, or tampering by unqualified personnel will result in dangerous conditions which can cause death, serious injury or equipment damage. Follow all safety instructions contained herein.

8.0 Guarantee Information

Gentec Inc. guarantees its Kameleon products to be free of defects in materials. Gentec Inc. for consequential damages arising out of, or in connection with, the use or performance of this product or other indirect damages with respect to loss of property, revenue or profit, or cost of removal, installation or reinstallation.

for Technical Support

**USA 888-235-7506
Canada 800-463-4480**

**2625 Dalton Avenue
Quebec QC G1P 3S9 Canada**
Technical Support: info@gentec.ca
www.kameleonlightings.com

GUARANTEE - CONDITIONS

New Equipment

1. Subject to and strictly according to the terms and conditions set out below, Gentec Inc. guarantees that its Gentec Inc. **Kameleon systems** and its low tension lighting systems installed new (hereinafter collectively referred to as the "System") as well as each of the original components of these Systems, sold individually (the "Components") are free from all manufacturing faults and defects (the Guarantee on "New Equipment").

First Purchaser

2. The Guarantee on New Equipment is for the benefit of and applies only to the first purchaser of a System or a Component. This guarantee is non-transferable.

Duration of Guarantee

3. a) The Guarantee on New Equipment applicable to the System extends for a period of one year and six months, as calculated from the date the System was shipped to the client by Gentec Inc.
- b) The Guarantee on New Equipment applicable to the Component sold individually extends for a period of one year as calculated from the date of their shipment to the client by Gentec Inc.

Guarantee on Repairs

4. Subject to and strictly according to the terms and conditions set out below, any repairs carried out by the workshops of Gentec Inc. is also guaranteed free from faults and defects for a period of sixty (60) days as calculated from the date Gentec Inc. shipped the repaired product to the client. This guarantee applies only to Systems and Components sold by Gentec Inc. or its authorized retailers and for which the Guarantee on New Equipment is expired and as regards a repair is billed to the client and duty paid by the client (the "Guarantee on Repairs").

Specific Conditions Applicable to the Guarantee on New Equipment

5. In its sole discretion, but subject to the clause "Exclusion from the Guarantee", Gentec Inc. will replace or repair at its expenses (parts and labour), any System or Component or parts thereof which in its opinion are affected by a manufacturing fault or defect and which are returned to it for repair or replacement before the expiration of the Guarantee.

Specific Conditions Applicable to the Guarantee on Repairs

6. Subject to the clause "Exclusion from the Guarantee", Gentec Inc. will rectify at its expenses any repair carried out by it in its workshops, if in its opinion, it appears that the previous repair was faulty or defective, on the condition that the client returns the previously repaired object to Gentec Inc. before the expiration of this Guarantee. Any repairs carried out pursuant to this Guarantee are also guaranteed for the period and according to the conditions outlined in paragraph 4.

General Conditions Applicable to the Guarantee on New Equipment and the Guarantee on Repairs (hereinafter collectively referred to as the "Guarantee")

7. a) The removal or installation of a System or a Component or any part thereof (hereinafter referred to as the "Product") is the responsibility of the client. All related expenses are assumed by the client.
- b) The shipping of a Product to Gentec Inc. is the responsibility of the client. Such Product must be shipped pre-paid to Gentec Inc. accompanied by the Gentec Inc. au-

thorization number. Return shipping expenses for the client's Product are paid by the client.

- c) Pursuant to the terms of this Guarantee, the obligation of Gentec Inc. is, in accordance with the Guarantee applicable to the Product, exclusively and strictly limited to the repair or replacement of a Product or the rectification of a repair already completed by Gentec Inc. in its workshops. This Guarantee is the only one applicable to the Products to the exclusion of any other guarantees, representations or undertakings whatsoever made by Gentec Inc, its employees, agents or representatives. Without limiting the generality of the foregoing, the Guarantee cancels and expressly replaces all other express or tacit guarantees or conditions. The Guarantee neither constitutes nor confers any guarantee or representation as to the marketing or the adaptability of a product for any particular use. For the period that the Guarantee on New Equipment applies, Gentec Inc. guarantees sufficient availability of parts to repair or replace a Product. However, it is expressly agreed that Gentec Inc. may from time to time and at all time modify, discontinue or replace its Product without advising the client and without incurring any liability or obligation whatsoever. Furthermore, Gentec Inc. cannot under any circumstances, be held liable for any direct or indirect damages to the client resulting from the possession or the use of a Product, including without limitations, all damages relating to shipping costs of a Product, labour charges for the removal or installation of a Product, communication or travelling expenses, pecuniary losses or other material or physical damages, loss of income, loss of use of the Product or any other loss of any nature whatsoever. In the event a Product is sent to Gentec Inc. Invoking the Guarantee and Gentec Inc. considers that for any reason(s) outlined in its Limited Guarantee, the Guarantee does not apply, the cost of all work, repair or replacement in whole or in part, carried out by Gentec Inc. shall be assumed by the client in accordance with the hourly rates and the price of parts applicable at that time.

Exclusion from the Guarantee

8. This Guarantee is null and without effect in any or all of the following situations:
 - a) non-maintenance or insufficient maintenance of a Product or part of a Product;
 - b) improper or inadequate use or treatment of the Product or part of the Product, including all damages or improper treatments resulting from the shipment of the Product, including shipment of the Product by Gentec Inc. to the client; faulty installation or improper integration of the Product or a part of the Product, unless the same is performed by Gentec Inc., its employees or agents; or
 - c) modifications or alterations or attempted modifications or alterations of the Product or any part thereof without the authorization of Gentec Inc. (if a modification or alteration is made by the client with the authorization of Gentec Inc., this authorization must be produced with any request for work under the Guarantee).

For any additional information, please contact your Gentec Inc. System authorized distributor or Gentec Inc. directly at the following address:

Gentec Inc.
Energy Management Division
2625 Dalton Avenue
Quebec QC G1P3S9 Canada

