Selection And Application Guide

lighting control SYSTEM

The LCP3000EZ System
Based on *Instabus* EIB Technology
Fully Modular

SIEMENS

LCP3000EZ Lighting Control System
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LCP3000EZ Lighting Control System
Overview — *Instabus* EIB Technology

About This Guide
This Selection and Application Guide helps you select the correct number of LCP3000EZ panels, inputs, outputs and accessories to fit your lighting control application.

Organization
- System Overview
  Provides an introduction into the lighting control system based on *Instabus* EIB.
- Technical Description
  Explains the *Instabus* architecture and technology.
- Selection Process
  Explains the step-by-step process for planning and designing a new or retrofit lighting control system.
- E-Z-Config Tool
  Describes the Palm OS based configuration tool, which can also be run on a PC using an emulator.
- Information Forms
  Support gathering information about the desired lighting control system function and layout.
- System Components
  Data sheets for all components used in the Siemens Lighting Control System LCP3000EZ.

Forms
These forms are an essential part of the application selection process. The forms can be found on pages 5 – 8 or on the Web: http://www.sea.siemens.com/power/product/pdprodlc_3000ez.html

Before proceeding, take a moment to make several photocopies of the forms.

Instabus **EIB Technology Overview**
Greater demand for flexibility, ease of installation and lower energy consumption have led to the development of lighting control and building management systems.

EIB is a standardized bus technology (ANSI EIA 776, EN 50090) used world-wide for these systems. The Siemens LCP3000EZ lighting control panels take advantage of the *Instabus* EIB technology.

Advantages
In conventional lighting control systems, each function needed its own wiring and each control system its own separate power supply. With *Instabus*, however, all operating functions and procedures can be controlled, monitored and signaled via a single shared twisted pair cable. In addition to the reduced number of cables and wiring, there are other advantages: initial installation is much simpler and, later, it can be extended or modified without difficulty. The LCP3000EZ Lighting Control Panels can be quickly and easily updated for new configurations or rearranged layouts simply by reassigning (reconfiguring) the devices. And it is not necessary to add any new wiring.

The LCP3000EZ Lighting Control Panels also can be connected to building automation systems. This means that the LCP3000EZ Lighting Control Panels can be used as economically in private homes as in hotels, schools, banks, office buildings or building complexes. Because of these advantages, *Instabus* has been used in over 100,000 installations world-wide with more than 10 million deployed devices.

Transmission
Instabus is a decentralized, event-controlled bus system with serial data transmission. All connected bus devices can exchange information with each other through the shared transmission route (the bus).

Data is transmitted serially and according to fixed rules (bus protocol). This involves packing information into a telegram and transporting it via the bus from one sensor (inputs) to one or more actuators (outputs — load relays).

Technology
There is no centralized control unit; each device has its own operational program which is stored in non-volatile memory. This removes the possibility of a complete system shut down, which can occur on conventional systems when the main logic board fails.

The power supply provides individual devices with 24V DC Class 2 power (safety extra low voltage, SELV) with a maximum current of 320mA. It has power and current limiters and is shortcircuit-proof.

Short network interruptions are bridged with 100ms stored-energy time.

The twisted pair cable maximum length, including all branches is 3300' (1000 m.)

LCP3000EZ Lighting Control System
System Overview

System Overview
The LCP3000EZ Lighting Control System is fully modular in design. In its basic form, it consists of ten network able low voltage relay control panels.

Each panel contains microprocessor controlled inputs and control relay modules, each containing an individual microprocessor. Each panel offers 8, 16, 24 or 32 programmable switch inputs and 8, 16, 24, 32, 40 or 48 programmable control relays.

A set of up to ten panels with a total of up to 320 inputs and 480 relay outputs is network able without using communication or networking cards in any of these ten panels. Each panel contains an RS 232 interface module for access and configuration of the system. The set of up to ten panels consists of a base and up to nine expansion panels. The base panel is marked as Panel A, the expansion panels are marked as Panel B, C, D, E, F, G, H, J and K.

Each system panel has an RS-232 interface module for access and configuration of any of the set of ten panels; this allows to configure the complete network of 10 panels from any panel. Additionally, each panel has its own power supply. Panel A (first panel) can be fitted with an optional four channel or 16 channel time clock; the first four channels of the 16 channel time clock have astronomical time clock feature. Panel A is also expandable with a Dual Sensor for outdoor ambient light level and temperature reading, and/or with a key switch which can be used for override purposes.

Panel A is also the home of the optional IP Interface for Internet Protocol access via LAN to the lighting control system.

Each system panel (Panels A to K) provides up to 32 programmable switch inputs, up to 48 programmable control relays, an RS 232 interface module for access and configuration of any of the set of ten control panels. Optionally, each expansion panel is expandable with a Touch Panel, which allows touch control of all the loads connected to that panel, and/or with up to two motion sensors. These options are added without using any of the programmable switch inputs on any of the panels. Any input in any panel can control any output in any panel and also as many outputs as the configuration should require.

Each individual control relay provides an optional timer function with output timers for 30, 60, 90, 120, 180, 240 300 or 360 minutes. Each individual control relay provides an optional Warn Off (flash the lights) to inform the occupants of an impending Off command. The Warn Off command provides a time duration of 5 extra minutes. The occupants may exit the premises with adequate lighting or cancel the Warn Off by overriding the lighting zone. Each individual control relay permits lighting to be overridden ON for after hours use or cleaning. The control system provides timed overrides assigned to specific relays. Override times may be configured to 30, 60, 90, 120, 180 or 240, 300 or 360 minutes. Once the timed override expires, the control system returns the relays to their programmed state. These overrides are hard-wired inputs. Each control relay output provides a logic control function for logic (AND, OR) combination of inputs controlling the output relay.

Configuring the control system is through a Palm OS or PC based configuration software. The Palm OS device or PC may be connected to any panel in the control system via the RS 232 interface module. Descriptive information assists the user to employ the system without a programming manual.

The control system provides networking between sets of up to ten lighting control panels without adding communication or networking cards in each of these ten panels. Sets of up to ten lighting control panels are wired to the same line (twisted pair network).

The IP Interface option, allows the connection of networks of more than 10 panels via LAN This control system network may support up to 500 control panels.

The IP interface, also allows access to the lighting control system from the owner's LAN and it is also the point to connect to BAS.

LCP3000EZ Lighting Control System
Selection Process

Part 1: Plan the Project
Selecting LCP3000EZ Panels and Accessories
This section describes the application selection process for the Siemens LCP3000EZ Lighting Control System.

Application selection is a two-part process in which you:
1. Plan the project.
2. Design the project.
   Each part of the process includes several steps. All steps are required for most projects.
3. Identify application and function issues.

Step 1: Determine the application requirements and objectives
This step answers the question, "Why is a lighting control system being specified?"

You can gain insights into the application requirements by:
- Reviewing blueprints or other documents.
- Talking to the client or the client's representative about how the space will be used.
- Talking to the client or the client's representative about their goals for lighting control.

Step 2: Determine how rooms or buildings will be used
This information is essential for developing a good design. You can determine how an area will be used by asking the following questions:
- Is this new or retrofit construction?
- Does the system extend outdoors?
- Who are the occupants?
- What needs to be controlled?
- How much control is required?
- Who needs to control the system?
- What future changes are planned or should be possible without rewiring?

Step 3: Identify application and function issues.
This step allows you to decide what features and control mechanisms to build into the system. You can determine the requirements by asking the following questions:
- How many switching groups are required?
- Where can the panels be mounted?
- Where will wall switches be mounted?
- Is security lighting required?
- How are functions to be controlled?
- Which functions should be linked?
- Are overrides required?
- Will the system be monitored remotely or locally?

NOTE: Use the Configuration Forms to organize this data. The formscan be found in our Web page:
http://www.sea.siemens.com/power/product/pdprodlc_3000ez.html

See blank form samples on pages 6 –9.

Part 2: Design the Project
System design involves selecting the topology and components that best meet the requirements identified during the planning process. During planning, follow these guidelines:
- System supports a decentralized structure regardless of system size.
- System adapts to new functions easily.
- Up to 10 panels can be combined in one system.
- The standard enclosures are for surface mounting and have a non-key lock.
- Flush mounting kit and key lock are optional.
- Each panel can have up to: 48 outputs, 32 digital (dry contacts) inputs, two motion detectors, and one LCD touch panel.
- Control can be time dependent, light dependent, motion dependent or a combination.

System design involves several steps:
Step 1: Determine the number of lighting control panels in the system.
The Configuration Forms help determine the number of panels. Each panel may have up to 32 inputs and 48 output relays each panel in the system has a separate catalog number. (See 10th digit in the catalog number.)

Step 2: Determine panel location in the building.
Lighting Control Panel should be mounted adjacent to the panelboard feeding the load.

Step 3: Determine catalog number
a. Determine number of output modules in each panel (12th digit in catalog number).
Divide the number of outputs per panel by 8 and round up to the next integer.

Example: 9 output relays are required. Then insert two (2) for the outputs in the order number for that panel. Number of output modules determines the panel size (7th digit in catalog number).

b. Determine number of switch inputs (digital inputs /dry contacts)
Divide the number of inputs per panel by 8 and round up to the next integer.

Example: 7 inputs are required. Then insert one (1) or the inputs in the order number for that panel.

Step 4: Select accessories (ordered separately)
A system of up to 10 panels can have:
- A four channel or 16 channel time clock (If astronomical clock is required, use the 16 channel clock).
- A key switch for overrides
- One outdoor light and temperature dual sensor
- IP connectivity for Web Access operation

Each panel can have:
– Up to two motion sensors
– Touch panel

Step 5: Choose enclosure options
– Flush mount
– Key lock

LCP3000EZ Lighting Control System
Selection Process

Information Form Sample 1 — Relay Outputs

			RELAY OUTPUTS				LCP3000EZ	A
Panelboard	Ckt	Relay	Description	Control	Logic	Manual Override	Relay Module	Relay
		1					001	A
		2						B
		3						C
		4						D
		5						E
		6						F
		7						G
		8						H
		9					002	A
		10						B
		11						C
		12						D
		13						E
		14						F
		15						G
		16						H
		17					003	A
		18						B
		19						C
		20						D
		21						E
		22						F
		23						G
		24						H

LCP3000EZ Lighting Control System
Selection Process

Information Form Sample 1 — Relay Outputs

			RELAY OUTPUTS				LCP3000EZ	A
Panelboard	Ckt	Relay	Description	Control	Logic	Manual Override	Relay Module	Relay
		25					004	A
		26						B
		27						C
		28						D
		29						E
		30						F
		31						G
		32						H
		33					005	A
		34						B
		35						C
		36						D
		37						E
		38						F
		39						G
		40						H
		41					006	A
		42						B
		43						C
		44						D
		45						E
		46						F
		47						G
		48						H

LCP3000EZ Lighting Control System
Selection Process

Information Form Sample 2 — Time Clock Schedules (Weekly)

Schedule Number	Description	Time Clock Schedules (Weekly Schedule)													
		Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Sunday	
		On/ Off	Time	On/ Off	Time	On/ Off	Time	On/ Off	Time	On/ Off	Time	On/ Off	Time	On/ Off	Time
1															
2															
3															
4															
5															
6															

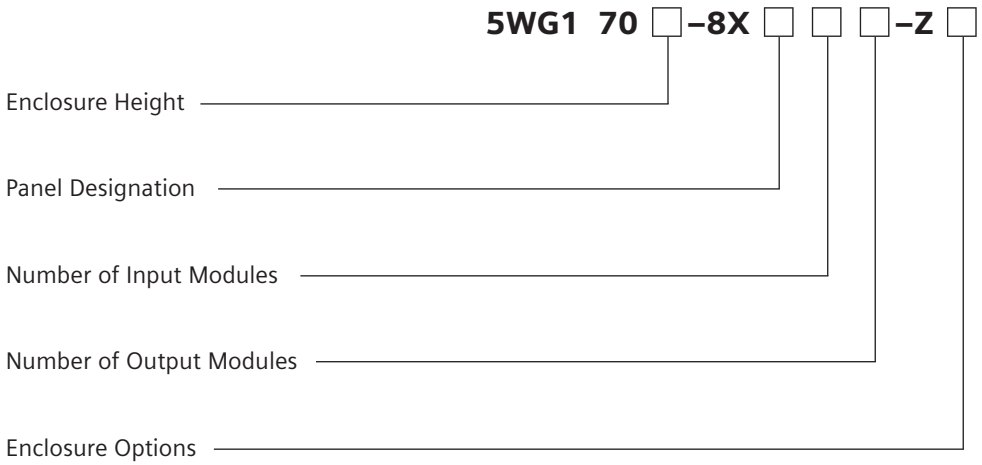
LCP3000EZ Lighting Control System
Selection Process

Information Form Sample 2 — Time Clock Schedules (Weekly)

Schedule Number	Description	Time Clock Schedules (Weekly Schedule)													
		Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Sunday	
		On/ Off	Time	On/ Off	Time	On/ Off	Time	On/ Off	Time	On/ Off	Time	On/ Off	Time	On/ Off	Time
7															
8															
9															
10															
11															
12															

LCP3000EZ Lighting Control System
Selection Process

Part 3: Determine Catalog Numbers



Enclosure Height	3 = 24″ (up to 16 relays = 2 output (relay) modules) 4 = 32″ (up to 32 relays = 4 output (relay) modules) 5 = 40″ (up to 48 relays = 6 output (relay) modules)
Panel Designation	A, B, C, D, E, F, G, H, J or K
Number of Input Modules	Select 0, 8, 16, 24 or 32 inputs. Divide the number of inputs by 8 to get the number to enter at this location. i.e. 24 inputs/8 = 3
Number of Output Modules	1 to 6 (8 outputs per module: i.e. 48 outputs/8 outputs per module = 6 Output modules)
Enclosure Options	Blank = None 1 = Flush mounting kit 2 = Key lock 3 = Key lock + Flush mounting kit

Final step: select accessories and options. (Ordered separately – see page 10.

LCP3000EZ Lighting Control System
Selection Process

Step 3: Determine Catalog Numbers
LCP3000EZ Catalog Numbering /Accessories

Catalog Number	Description
5WG1 703-8XX00	Flush mount kit for 20" X 24" box with 3 7.5 mm deep DIN Rails
5WG1 704-8XX00	Flush mount kit for 20" X 32" box with 4 7.5 mm deep DIN Rails
5WG1 705-8XX00	Flush mount kit for 20" X 40" box with 5 7.5 mm deep DIN Rails
5WG1 700-8XX00	Key lock kit for all panels
5WG1 372-5EY01-Z-A201	4 channel time clock
5WG1 373-5EY01-Z-A202	16 channel time clock
5WG1 255-2AB1 1	Motion sensor
5WG1 1 14-2AB02-Z-A221	Wall mounted bus coupler for motion sensor(s), Panel A
5WG1 11 4-2AB02-Z-A231	Wall mounted bus coupler for motion sensor(s), Panel A
5WG1 11 4-2AB02-Z-B222	Wall mounted bus coupler for motion sensor(s), Panel B
5WG1 1 14-2AB02-Z-B232	Wall mounted bus coupler for motion sensor(s), Panel B
5WG1 11 4-2AB02-Z-C223	Wall mounted bus coupler for motion sensor(s), Panel C
5WG1 11 4-2AB02-Z-C233	Wall mounted bus coupler for motion sensor(s), Panel C
5WG1 11 4-2AB02-Z-D224	Wall mounted bus coupler for motion sensor(s), Panel D
5WG1 11 4-2AB02-Z-D234	Wall mounted bus coupler for motion sensor(s), Panel D
5WG1 11 4-2AB02-Z-E225	Wall mounted bus coupler for motion sensor(s), Panel E
5WG1 1 14-2AB02-Z-E235	Wall mounted bus coupler for motion sensor(s), Panel E
5WG1 11 4-2AB02-Z-F226	Wall mounted bus coupler for motion sensor(s), Panel F
5WG1 1 14-2AB02-Z-F236	Wall mounted bus coupler for motion sensor(s), Panel F
5WG1 1 14-2AB02-Z-G227	Wall mounted bus coupler for motion sensor(s), Panel G
5WG1 1 14-2AB02-Z-G237	Wall mounted bus coupler for motion sensor(s), Panel G
5WG1 1 14-2AB02-Z-H228	Wall mounted bus coupler for motion sensor(s), Panel H
5WG1 1 14-2AB02-Z-H238	Wall mounted bus coupler for motion sensor(s), Panel H
5WG1 1 14-2AB02-Z-J229	Wall mounted bus coupler for motion sensor(s), Panel J
5WG1 1 14-2AB02-Z-J239	Wall mounted bus coupler for motion sensor(s), Panel J
5WG1 11 4-2AB02-Z-K230	Wall mounted bus coupler for motion sensor(s), Panel K
5WG1 11 4-2AB02-Z-K240	Wall mounted bus coupler for motion sensor(s), Panel K
5WG1 588-2CB1 1-Z-A21 1	Panel A, Touch Panel
5WG1 588-2CB1 1-Z-B21 2	Panel B, Touch Panel
5WG1 588-2CB1 1-Z-C213	Panel C, Touch Panel
5WG1 588-2CB1 1-Z-D214	Panel D, Touch Panel
5WG1 588-2CB1 1-Z-E215	Panel E, Touch Panel
5WG1 588-2CB1 1-Z-F21 6	Panel F, Touch Panel
5WG1 588-2CB1 1-Z-G21 7	Panel G, Touch Panel
5WG1 588-2CB1 1-Z-H218	Panel H, Touch Panel
5WG1 588-2CB1 1-Z-J219	Panel J, Touch Panel
5WG1 588-2CB1 1-Z-K220	Panel K, Touch Panel
5WG1 254-3EY01 -Z-A203	Outdoor ambient light level sensor
5WG1 220-2CB02-Z-A204	Key switch
5WG1 148-1AB21 -Z-A251	IP Interface; IP remote configuration

SWG1 373-5EY01 -Z-A202
16 channel time clock

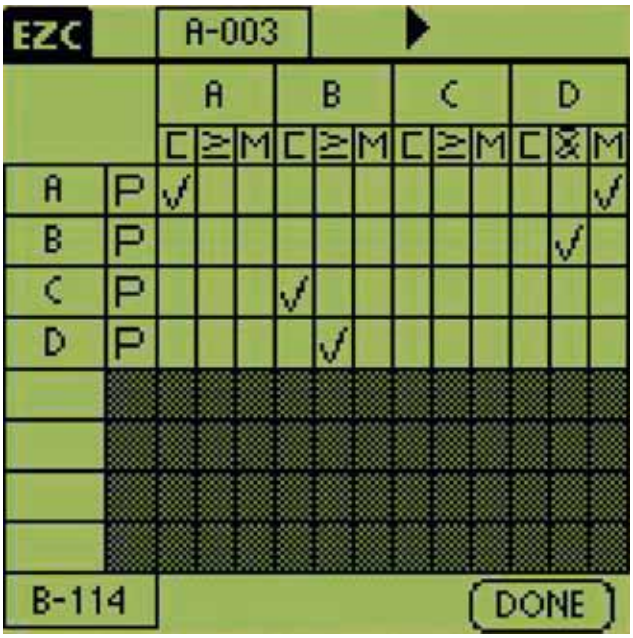
SWG1 254-3EY01 -Z-A203
Outdoor ambient light level sensor

SWG1 148-1AB21 -Z-A251
IP interface; IP remote visualization and control

LCP3000EZ Lighting Control System
E-Z Config Tool

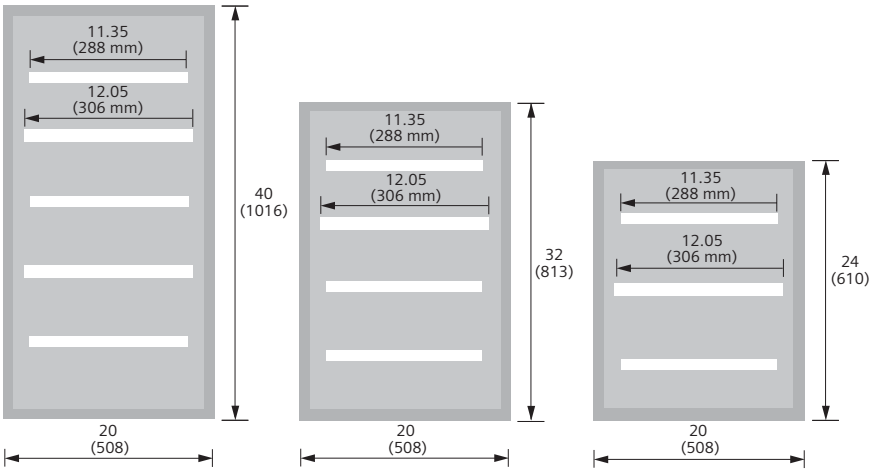
The LCP E-Z-Config Tool is a software program developed by Siemens to allow installers to easily configure the LCP3000EZ lighting control system. It is distributed free of charge with every system.

Palm Pilot with the following requirements is needed:
- Palm OS 3.5 or higher
- 2MB RAM or more
- Serial interface RS 232 or a Windows based PC with Palm Emulator software installed. This software is also distributed free of charge with every system.



The LCP3000EX E-Z Config Tool allows:
- Configure and download functions to a system
- Upload an existing configuration from a system
- Test the configuration
- Operate the relays one at a time or as a block
- Read relay status
- Operate relays using linked inputs
- Read outdoors light and temperature levels

LCP3000EZ Lighting Control System
System Components



Dimensions in inches and (mm)

Enclosures
The Siemens *Instabus* lighting control panel supports the system components and other panel mounted devices. All panel mounted devices snap into DIN rails. An integral data rail provides 24V DC power and communications to the system.

The lighting control panel enclosures are 20 inches in width; either 24, 32 or 40 inch high, and 5 ¾ inches deep.

Flush-mount and surface-mount enclosures are available for new or retrofit projects.

Height	Description	Catalog Number
24" (610 mm)	Freestanding, surface mount enclosure	**11 -D-2275-01**
32" (813 mm)	Freestanding, surface mount enclosure	**11 -D-2276-01**
40" (1016 mm)	Freestanding, surface mount enclosure	**11 -D2277-01**
24" (610 mm)	Flush mount kit	**11 -D-2278-01**
32" (813 mm)	Flush mount kit	**11 -D-2279-01**
40" (1016 mm)	Flush mount kit	**11 -D-2280-01**
N-A	Key lock kit	**11 -D-2281-01**

LCP3000EZ Lighting Control System

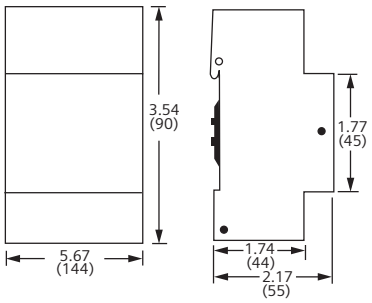
Internally Mounted Devices

5WG1 51 2-1 CB01

Load Switch N 512

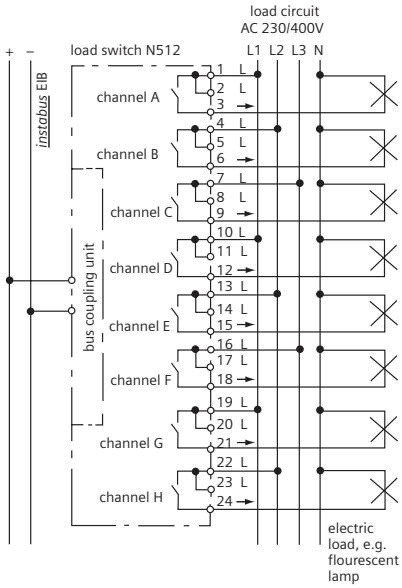
The load switch N 512 is an N-system DIN rail mounted device. Via its eight outputs, it can switch eight separate groups of electric devices. The power supply of the load switch N 512 is provided by the bus (i.e., it requires no additional power supply). The outputs may be operated manually via slide switches. These switches also show the actual switching state (when switching manually as well as when switching via the bus). Each of the outputs (relays) can be assigned various tasks depending on the application program used, i.e. the load switch N 512 consists of the device (hardware) and its application programs (software).

Dimension Diagrams



Dimensions in inches and (mm)

Typical Circuit



Technical Data	
Power Supply	Class 2 via bus line, 24V DC
Device Rating	480 V AC
Outputs	Number: 8 contacts Rated voltage: 12 – 277V AC, 50... 60 Hz Rated current: 20 Amp Switching characteristic: no contacts
Control Elements	Eight slide switches for manual operation
Display Elements	One red LED: for monitoring bus voltage and displaying mode, selected with the learning button Eight slide switches providing switching state information
Connections	Load circuit: AWG# 14-12 solid or stranded Cu bus line: One screwless bus connection block AWG #20 –18 solid Cu, pressure contacts on data rail
Physical Specifications	Housing: plastic N-system DIN rail mounted device, width: 144 mm (5.67") Weight: approx. 560 gr Installation: rapid mounting on DIN EN 50022-35 x 7.5 rail
Reliability	99.92% based on 1,000,000 units/10 years of operation under load
Electromagnetic Compatibility	Complies with Part 15 of the FCC rules pursuant to the limits Class A digital device
Environmental Specifications	Ambient temperature operating: 23°F – 113°F (-5... +45°C) Ambient temperature non-op.: -13°F – 158°F (-25... +70°C) Relative humidity (non-condensing): 5 % to 93
Listings and Certifications	UL listed (E173 174) UL 916, Energy Management Equipment Accessory CSA certification (pending) EIB certified CE Mark Complies with EMC regulations (residential and non-residential buildings) and low voltage regulations

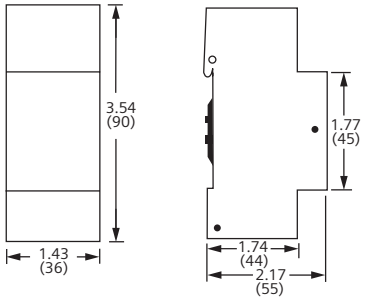
LCP3000EZ Lighting Control System
Internally Mounted Devices

5WG1 261-1CB01

Binary Input N 261

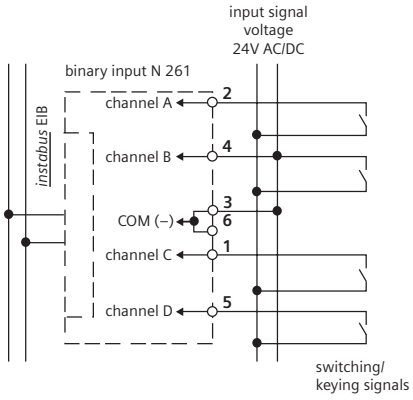
The binary input N 261 is an N-system DIN rail mounted device with four inputs. The inputs require 24 AC or DC; this voltage is provided by the panel's own power supply unit. Each of the inputs can be assigned to control as many outputs as required by the lighting system.

Dimension Diagrams



Dimensions in inches and (mm)

Typical Circuit



Technical Data

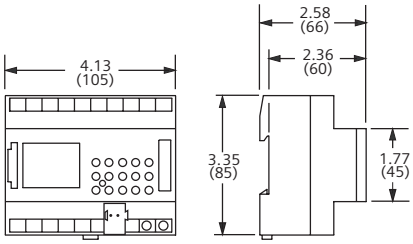
Power supply Inputs	Class 2 via bus line, 24V DC Number: 4 inputs Input signal voltage: – Rated value: 24V AC/DC – Frequency: 47... 63 Hz (at 24V AC) – Signal "0": -30... +5V DC, 0... 5V AC – Signal "1": +10... +30V DC, 10... 30V AC Input current: – 3.5 mA (at 24V AC) and, 6 mA (at 24V DC) Input signal length: min. 50 ms Inputs can be from maintained or momentary contacts. Length of input signal cable: max. 110 yards (100 m)
Display Elements	1 red LED: for monitoring bus voltage and displaying mode, selected with the learning button
Connections	Signal inputs, screwless plug-in terminals Load circuit: AWG # 20-14 solid Cu Bus line: pressure contacts on data rail
Physical Specifications	Housing: plastic N-system DIN rail mounted device, width: 1.42" (36 mm). Weight: approx. 0.33 lb (150 gr) Installation: rapid mounting on DIN EN 50022-35 x 7.5 rail
Reliability	99.92% based on 1,000,000 units/10 years of operation under load
Electromagnetic Compatibility	Complies with Part 15 of the FCC rules pursuant to the limits for a Class A digital device
Environmental Specifications	Ambient temperature operating: 23°F – 113°F (-5... +45°C) Ambient temperature non-op.: -13°F – 158°F (-25... +70°C) Relative humidity (non-condensing): 5% to 93%
Listings and Certifications	UL listed (E173 174) UL 916, Energy Management Equipment Accessory CSA certification (pending) EIB certified CE Mark Complies with EMC regulations (residential and non-residential buildings) and low voltage regulations

LCP3000EZ Lighting Control System
Internally Mounted Devices

5WG1 372-SEY01

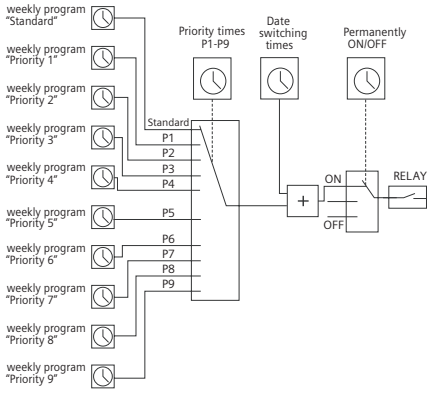
Annual Scheduler REG 372
The 4-channel time switch REG 372 is a DIN rail mounted device for mounting in distribution boards. The connection to system is made via a bus connector. The time switch offers: 322 switching schedules.

Dimension Diagrams



Dimensions in inches and (mm)

Typical Circuit



Technical Data

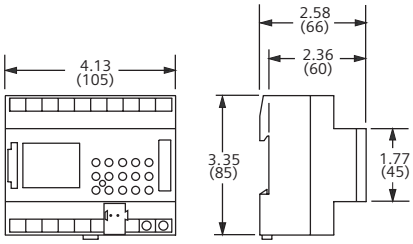
Power supply Inputs	Class 2 via bus line, 24V DC. Consumption: 9mA (at bus voltage) 4 channels Time base: quartz precision 322 memory locations in EEPROM Shortest switching interval; 1 second / minute Switching accuracy: 1 second Shortest impulse: 1 second Time accuracy: ± 1 Sec. Power reserve: Lithium battery ca. 2 years at 68°F (20°C) Type of Lithium battery: CR 2450 Daily, weekly, yearly and impulse programs as automatic programs Manual overrides - Temporary manual override - Permanent manual override Programming: Via 10-key keyboard or with PC Obelisk software and Obelisk memory card Automatic DLS time changeover
Control Elements	15 soft touch buttons: for setting day of week, hour, minute, time, program entry and manual overrides
Display Elements	One red LED: for monitoring bus voltage and displaying mode, selected with the learning button LC Display: for display of time, day of week, daylight savings mode, holiday program mode, switching status and manual control mode
Connections	Bus line: screwless bus connection block
Physical Specifications	Polymer casing DIN rail mounted device Weight: 1,00 lb (451 g) Installation: rapid mounting on DIN EN50022-35 x 7.5 rail
Reliability	99.92% based on 1,000,000 units/10 years of operation under load
Electromagnetic Capability	Complies with Part 15 of the FCC rules pursuant to the limits for a Class A digital device
Environmental Specifications	Ambient temperature operating: 23°F - 113°F (-5...+45°) Ambient temperature non-op.: -13°F - 158°F (-25...+70°C) Relative humidity (non-condensing): 5% to 93
Listings and Certifications	EIB certified CE mark Complies with EMC regulations (residential and non-residential buildings) and low voltage regulations

LCP3000EZ Lighting Control System
Internally Mounted Devices

555WG1 373-5EY01

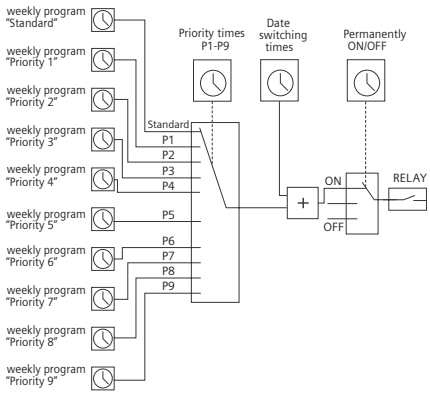
Annual Scheduler REG 373
The 16-channel time switch REG 373 (annual scheduler) is a DIN rail mounted device. The connection to system is made via a bus connector. The time switch offers: 500 switching schedules.

Dimension Diagrams



Dimensions in inches and (mm)

Typical Circuit



Technical Data

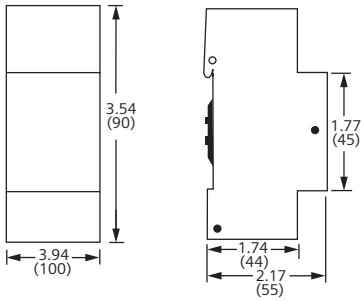
Power supply Inputs	Class 2 via bus line, 24V DC. Consumption: 9mA (at bus voltage) 16 channels Time base: quartz precision 500 memory locations in EEPROM Shortest switching interval; 1 second / minute Shortest impulse 1 second Time accuracy: ± 1 Sec./Tag or radio controlled Power reserve: Lithium battery ca. 1 1/2 years at 68°F (20°C) Type of Lithium battery: CR 2450 Daily, weekly, yearly and impulse programs as automatic programs Manual overrides - Temporary manual override - Permanent manual override Programming: Via 10-key keyboard or with PC Obelisk software and Obelisk memory card Automatic DLS time changeover
Control Elements	15 soft touch buttons: for setting day of week, hour, minute, time, program entry and 16 manual overrides
Display Elements	One red LED: for monitoring bus voltage and displaying mode, selected with the learning button LC Display: for display of time, day of week, daylight savings mode, holiday program mode, switching status and manual control mode
Connections	Bus line: screwless bus connection block
Physical Specifications	Polymer casing DIN rail mounted device Weight: 1.00 lb (451 g) Installation: rapid mounting on DIN EN50022-35 x 7.5 rail
Reliability	99.92% based on 1,000,000 units/10 years of operation under load
Electromagnetic Specifications	Complies with Part 15 of the FCC rules pursuant to the limits for a Class A digital device
Environmental Specifications	Ambient temperature operating: 23°F - 113°F (-5...+45°) Ambient temperature non-op.: -13°F - 158°F (-25...+70°C) Relative humidity (non-condensing): 5% to 93
Listings and Certifications	EIB certified CE mark Complies with EMC regulations (residential and non-residential buildings) and low voltage regulations

LCP3000EZ Lighting Control System
Internally Mounted Devices

5WG1 123-1CB01

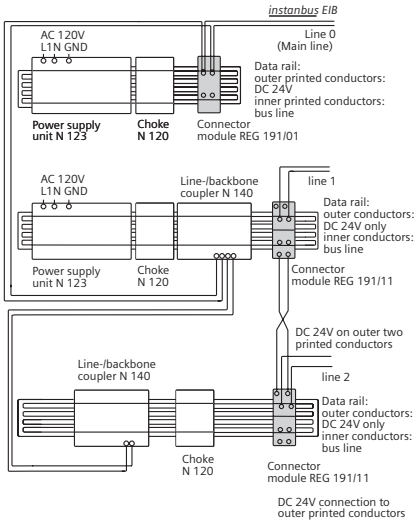
Power Supply Unit N 123 320 mA
The power supply unit N 123 provides and monitors the necessary Class 2 power for each panel. Power supply units are mounted on a DIN-rail equipped with a data-rail in a control panel. The power supply unit N 123 must be installed in combination with choke N 120. Choke and power supply unit have to be mounted on the same DIN rail and are connected via the data rail. The wire length between power supply unit N 123, choke N 120 and any of its bus devices must not exceed 350 m (1000'). The power supply unit N 123 has a voltage and current control and is therefore short-circuit proof. Short power breakdowns are bridged with a buffer interval of at least 100 ms For uninterrupted power, it is suggested to use a separately safeguarded circuit for the power supply unit N 123's power supply line.

Dimension Diagrams



Dimensions in inches and (mm)

Typical Circuit



Technical Data	
Input Voltage	Voltage 120V AC Frequency 50... 60 Hz Range: 100... 132V AC
Output Voltage	Rated voltage 29V DC safety extra low voltage (SELV) Range: 28... 30V DC
Output Current	320 mA Short-circuit current: limited to 1.5 A
Backup Interval	On input voltage failure: min. 200 ms at rated current
Display Elements	1 red LED for indicating a shorted-out bus line or device over-load 1 green LED for indicating faultless operation 1 yellow LED for indicating external over voltage on the bus line power supply in reset mode
Connections	Mains connection, screwless plug-in terminals: AWG #14 solid Cu bus line, pressure contacts on data rail
Physical Specifications	Polymer casing, DIN rail mounted device, width: 5.5 (1SU = 18 mm) Weight: approx. 460 g (28 oz) Installation: rapid mounting on DIN EN 50022-35 x 7.5 rail
Electromagnetic Compatibility	Complies with Part 15 of the FCC rules pursuant to the limits for a Class A digital device
Environmental Specifications	Ambient temperature operating: 23°F – 113°F (-5... +45°C) Ambient temperature non-op.: -13°F – 158°F (-25... +70°C) Relative humidity (non-condensing): 5 % to 93%
Listings and Certifications	UL listed (E173 174) UL 916, Open Energy Management Equipment CSA certified CE marked Complies with EMC regulations (residential and non-residential buildings) and low voltage regulations

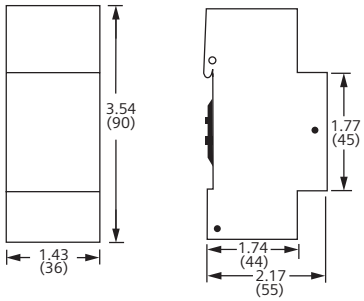
LCP3000EZ Lighting Control System
Internally Mounted Devices

5WG1 120-1AB01

Choke N 120 — 500 mA

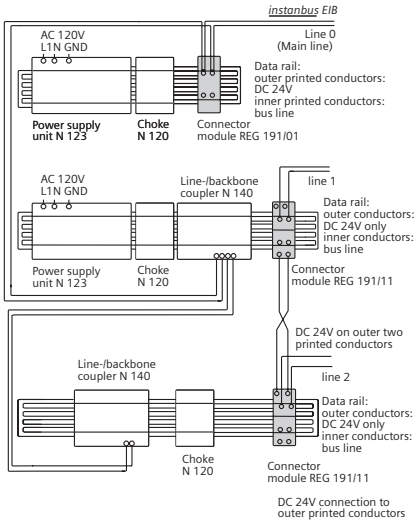
The bus devices working voltage is transmitted via the same cable as the data. The choke N 120 protects these data from becoming terminated on the bus line by the power supply. The choke picks up the working voltage on the two outer printed conductors of the data rail and feeds it to the two inner printed conductors via induction. The working voltage is directly fed to the DIN rail's two outer printed conductors by the N123 power supply unit. Via the incorporated reset-switch (operation > 10 s), the bus devices are set to their default setting. This is done by short-circuiting the bus line and switching off the working voltage. The choke resistance is low-ohmic for the direct current of the working voltage. As information is transformed to alternate current for transmission on the system, the resistance of the choke N 120 is high-ohmic. Therefore, the working voltage does not affect the information signal.

Dimension Diagrams



Dimensions in inches and (mm)

Typical Circuit



Technical Data

Input Voltage	Rated voltage: 29V DC (28...30V DC) Rated current: 500 mA
Control Elements	Slide switch: for resetting the bus devices connected to the line (operation > 20 s)
Display Elements	One red LED for indicating when the slide switch is set to reset position
Connections	Power supply: pressure contacts on data rail (outer printed conductors) Bus line, pressure contacts on data rail (inner printed conductors)
Physical Specifications	Polymer casing N-system DIN rail mounted device, width 2 SUs (1 SU = 18 mm) Weight: approx. 105 g (4 oz) Installation: rapid mounting on DIN EN 50022-35 x 7.5 rail
Reliability	99.92% based on 1,000,000 nits/10 years of operation under load
Electromagnetic Compatibility	Complies with Part 15 of the FCC rules pursuant to the limits for a Class A digital device
Environmental Specifications	Ambient temperature operating: 23°F – 113°F (-5... +45°C) Ambient temperature non-op.: -13°F – 158°F (-25... +70°C) Relative humidity (non-condensing): 5 % to 93%
Listings and Certifications	UL listed (E173 174) UL 916, Open Energy Management Equipment CSA certified CE marked Complies with EMC regulations (residential and non-residential buildings) and low voltage regulations EIB certified

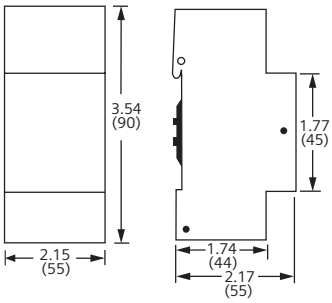
LCP3000EZ Lighting Control System
Internally Mounted Devices

5WG1 148-1AB04

Interface N 148/04 RS 232

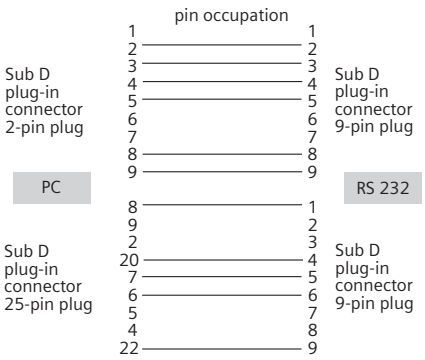
The RS 232 interface N 148/04 is a N-system DIN rail mounted device. The device is connected to the bus line via the pressure contact system. The N 148/04 interface provides a galvanically separated connection to the bus system via its built-in Sub D 9-pin connector socket. The connection to the PC is made between the 9- pin SUB D socket of the interface N 148/04 and the COM 1 or COM 2 interface of the PC. A DB-9 (male female) serial cable is needed for this connection. It enables a personal computer (with Windows 95, 98, 2000 or XP operating system); or a PALM device (with serial port support) to be used for system configuration. It is also used by Siemens authorized personnel for advanced troubleshooting, programming and diagnosis. With the N 148/04 interface, it is possible to operate the devices in the system. The N148/04 has two selectable protocols: the standard protocol, which is used by Siemens authorized personnel, and the FT1 .2 protocol. Which is used for field configuration with the PALM configuration software tools.

Dimension Diagrams



Dimensions in inches and (mm)

Typical Cable Circuit



Technical Data

Rated Voltage	Bus line: 24V DC (21 ... 30V DC).
Transmission Rate	9600 bit/s, 19200 bit/s
Display Elements	One red LED: for controlling bus voltage and displaying mode
Connections	Bus line, pressure contacts on data rail RS 232 Interface: 9-pin Sub D socket length of data cable: max. 15 m (45 ft) Serial connection DB-9 (male female cable available in electronics stores)
Physical Specifications	Polymer casing DIN rail mounted device, width 1 SU (1 SU = 18 mm - 0.71") Installation: rapid mounting on DIN EN 50022-35 x 7.5 rail
Electromagnetic Compatibility	Complies with Part 15 of the FCC rules pursuant to the limits for a Class A digital device
Environmental Specifications	Ambient temperature operating: 23°F – 113°F (-5... +45°C) Ambient temperature non-op.: -13°F – 158°F (-25... +70°C) Relative humidity (non-condensing): 5 % to 93%
Listings and Certifications	UL listed (E173 174) UL 916, Open Energy Management Equipment CSA certified CE marked Complies with EMC regulations (residential and non-residential buildings) and low voltage regulations EIB certified

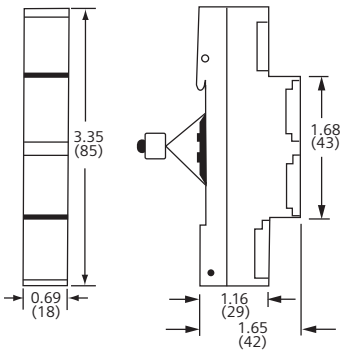
LCP3000EZ Lighting Control System
Internally Mounted Devices

SWG1 191-5AB01/11

Connector REG 191/01/11
The connector module REG 191/01 provides the connection between the data rails within a panel or between panels throughout the building. The connection to the data rail is established via pressure contacts. The connector module REG 191/11 between the data rail the N261 binary input device and the external digital inputs.

The cables are connected via screw-less bus connector blocks 193. Up to four twisted pairs may be connected per connector block 193. The REG191 DIN rail mounted device is of compact design to allow mounting beneath the panel dead front.

Dimension Diagrams



Dimensions in inches and (mm)

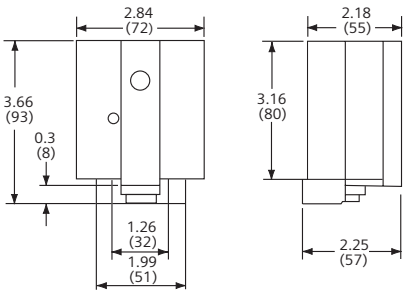
Technical Data	
Connections	For both bus connections — Contact pins For the bus — Pressure contacts
Physical Specifications	Polymer casing N-system DIN rail mounted device. Width 1 SU (1 SU = 18 mm - 0.71") Weight: approx 4.5 gr (2 oz) Installation: rapid mounting on DIN EN 50022-3.5 x 7.5 rail
Environmental Specifications	Ambient temperature operating: 23°F – 113°F (-5... +45°C) Ambient temperature non-op.: -13°F – 158°F (-25... +70°C) Relative humidity (non-condensing): 5 % to 93%
Accessories	Bus connection block 193

LCP3000EZ Lighting Control System
Externally Mounted Devices

5WG1 254-3EY01

Dual Sensor AP 254
The Dual Sensor AP 254 provides ambient light level and outdoor temperature values. These values can be read on a computer with the optional Web access software, as well as with the configuration software. This device controls load switches based on any of the pre-set threshold levels for ambient light; the preset levels are 100 Fc, 50 Fc and 20 Fc.

Dimension Diagrams



Dimensions in inches and (mm)

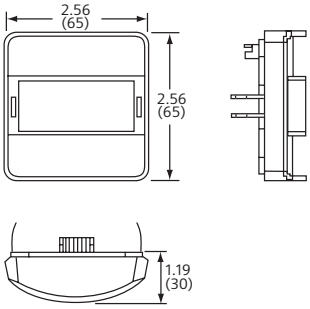
Technical Data	
Power	Class 2 via bus line, 24V DC Operating voltage: 21V DC – 30V DC
Measuring Range	Light level: 0.09 ... 9300 Foot-candle (... 100,000 Lux) ± 5 Lux or ± 20 Lux Temperature: -13°F... 131°F (-25... 55°C) ± 1 or ± 5 %
Connections	Screwless bus connection block
Physical Specifications	Housing: Polymer
Reliability	99.92% based on 1,000,000 units/10 years of operation under load
Electromagnetic Compatibility	Complies with Part 15 of the FCC rules pursuant to the limits for a Class A digital device
Environmental Specifications	Ambient temperature operating: 23°F – 113°F (-5... +45°C) Ambient temperature non-op.: -13°F – 158°F (-25... +70°C) Relative humidity (non-condensing): 5 % to 93%
Accessories	EIB certified Complies with EMC regulations (residential and non-residential buildings)

LCP3000EZ Lighting Control System
Externally Mounted Devices

5WG1 255-2AB11

Motion Detector UP 255
The motion detector UP 255 is a proximity sensor which reacts to movements of people, animals or other moving objects. If a motion is detected, it gives switching commands to the corresponding relay(s). It must be installed on the flush-mounted bus coupling unit (UP 114). It is only operational when used together with the bus coupling unit. This device is for permanent interior installations, in dry rooms.

Dimension Diagrams



Dimensions in mm and inches

Technical Data	
Power Supply	Via the bus coupling unit
Properties	Light sensor: adjusted 93 foot-candles (1000 Lux). Horizontal detection angle: 180 degrees on two levels (can be reduced to 90° on the left or right using a detachable masking plate) Lateral range: approx. 20 ft. (6 m) each side. Optical system: Fresnel lens (2 levels with 18 segments)
Connections	10-pole plug connector (PEI): for connection to the bus coupling unit
Physical Specifications	Housing: Plastic Dimensions (L x W x D): 65 x 65 x 30 mm (2.56" x 2.56" x 1.18") Weight: approx. 45 g (0.095 lb) Mounting: clipped onto bus coupling unit Mounting height: 3.6 to 7.2 ft (1.10 m to 2.20 m)
Reliability	99.92% based on 1,000,000 units/10 years of operation under load
Electromagnetic Compatibility	Complies with Part 15 of the FCC rules pursuant to the limits for a Class A digital device
Environmental Specifications	Ambient temperature operating: 23°F – 113°F (-5... +45°C) Ambient temperature non-op.: -13°F – 158°F (-25... +70°C) Relative humidity (non-condensing): 5 % to 93%
Listings and Certifications	EIB certified CE Mark Complies with EMC regulations (residential and non-residential buildings) and low voltage regulations

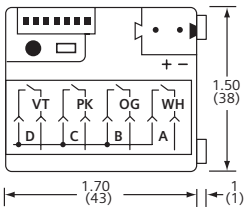
LCP3000EZ Lighting Control System
Externally Mounted Devices

5WG1 220-2CB01

Switch Interface UP 220

The switch interface UP 220 is a binary input device for installation in a standard junction or wall switch box. Four inputs are available for voltage-free switching contacts. Up to four switches may be connected to a switch interface UP 220. The connection to the switch interface UP 220 is accomplished via a plug-in eight-core set of lines (included). The length of the cables that connect the switches to the switch interface UP 220 must not exceed 5 m (15').

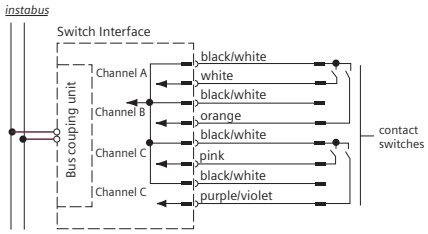
Dimension Diagrams



Dimensions in inches and (mm)

Technical Data	
Power Supply	Via the bus line
Number of Inputs	Four for momentary or maintained contact switches/push buttons
Connections: switches/ push buttons	Eight wires twisted together in pairs with the push button interface permanently connected, length approx. 1.50 mm, may not be extended
Bus line, Bus connection block, screwless	Use bus connector 193
Mounting	Fitted in standard wall switch and junction boxes

Typical Cable Circuit



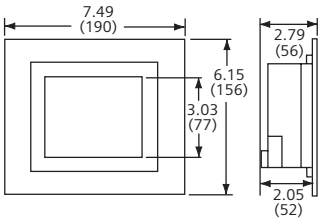
LCP3000EZ Lighting Control System
Externally Mounted Devices

5WG1 588-2AB11

Touch Panel Vision UP 588
The touch panel vision UP 588 is a multifunctional display/control unit. The basis of the device is an LC display with a resolution of 320 x 240 pixels and an integrated, resistive matrix with 6 x 10 fields. The display has backlighting which is activated during operation and is switched off automatically. The display unit is used for display and operation of all relays in a panel.

Design, aluminum frame (Cat # 5WG1 588-8AB01) is required for the touch panel.

Dimension Diagrams



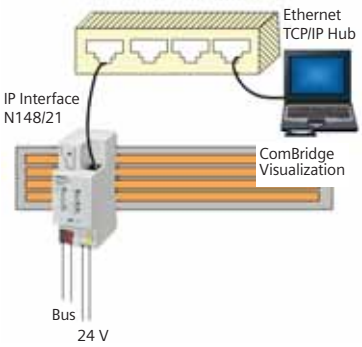
Dimensions in inches and (mm)

Technical Data	
Power Supply	Bus voltage: via the bus line. Display back light: requires 24 VCD from the system power supply
Operating Element	Resistive matrix with 6 mm x 10 mm fields (touch sensitive screen)
Display	320 X 240 pixel display. Green backlight.
Connections	Bus line: screwless connection
Physical Specifications	Housing: Plastic Mounting depth in flush type box (supplied with device): 2.05" (51 m)
Electromagnetic	Complies with part 15 of the FCC rules pursuant to the limits for Class A digital device
Environmental Specifications	Ambient temperature operating: 23°F – 113°F (-5... +45°C) Ambient temperature non-op.: -13°F – 158°F (-25... +70°C) Relative humidity (non-condensing): 93%
Listings and Certifications	UL Listed (E173 174) UL 916, Energy Management Equipment Accessory) and low voltage regulations

LCP3000EZ Lighting Control System
Externally Mounted Devices

5WG1 148-1AB21

Example of Operation



Ethernet Interface N148/21
The Ethernet interface N148/21 is a DIN rail mounted device. It enables connections to LCP3000EZ via data networks using the Internet protocol (IP). PCs can exchange data with the LCP3000EZ (EIB Protocol) through this communications link.

The IP interface employs the EIBnet/IP Tunneling standard; which enables the user to send commands through the LAN to the LCP3000EZ. It also allows visualization of the system status.

A direct connection between an networked PC and the LCP3000EZ can be established via the data network. This allows access to the LCP3000EZ from any access point in the data network.

The IP address assignment is by DHCP server. Configuration of the DHCP server may require the MAC address, which is printed on the device.

Consult your network administrator regarding configuration of the parameters.

Technical Data	
Power Supply	Bus voltage: via the EIB bus line Operating voltage: 24 V AC/FC from the panel power supply
Display Elements	One green LED: Device ready (ON) One yellow LED: communications on bus line One green LED: Ethernet Link signal available (Lk) One yellow LED: receiving data from Ethernet (Rx) One red LED: Transmitting data to Ethernet (Tx)
Connections	Bus line: screwless red and black connector block Power: screwless yellow and white connector block Ethernet IP communication: RJ45 socket
Network Communications	Ethernet 10BaseT (10Mbits/sec). EIBret/IP
Physical Specifications	Housing: Plastic DIN rail mounted Weight: approx 3.53 oz (100 gr)
Environmental Specifications	Ambient temperature operating: 23°F – 113°F (-5... +45°C) Ambient temperature non-op.: -13°F – 158°F (-25... +70°C) Relative humidity (non-condensing): 5% – 93%
Listings and Certifications	EIB, KNX, CE CE mark: complies with EMC regulations (residential and commercial) and low voltage regulations

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