

USER'S GUIDE

LEONICS[®]

LOC-series

SMART OBSTRUCTION LIGHT CONTROLLER

Authorized Distributor

LEO ELECTRONICS CO., LTD.

119/50-51 Moo 8, Bangna-Trad Rd., Bangna, Bangkok 10260 THAILAND

Tel. 66-2746-9500, 66-2746-8708 Fax. 66-2746-8712

■ e-mail : global_business@leonics.com ■ www.leonics.com ■

LEN.MAN.OLC.100 Rev.3.00/2009

CONTENT

SAFETY INSTRUCTIONS	1
INTRODUCTION	2
FRONT PANEL	2
INSTALLATION	4
OPERATION SETTING	5
DISPLAY DATA	11
TABLE OF OPERATION SETTING BY PRESSING KEYS	14

SAFETY INSTRUCTIONS

Please read and follow this user's guide carefully and completely.

Important: Please keep this user's guide for reference in order to use OBSTRUCTION LIGHT CONTROLLER properly and safely. This user's guide contains safety instructions, introduction, installation, testing operation, operation and data setting and troubleshooting.

If OBSTRUCTION LIGHT CONTROLLER does not operate properly, please contact us, nearest LEONICS service center for assistance, send e-mail to support@leonics.com, or visit us at www.leonics.com.

For your convenience and quick reference for LEONICS service, please fill the requested information in the blanks below:

Model : _____

Serial Number : _____

Purchased date : _____

Purchased from : _____

CAUTION

1. Do not disassemble OBSTRUCTION LIGHT CONTROLLER to repair or maintenance. Inside consists of complicated electronics parts, which cannot be serviced by owner and has high electricity, which causes death. Please contact us or our nearest service center for service maintenance or repair.
2. Reverse Obstruction Lamp 1, Obstruction Lamp 2, Obstruction Lamp 3 and Obstruction Lamp 4 polarity connection may be damage OBSTRUCTION LIGHT CONTROLLER.

1.1 Safety instruction for installing

- 1.1.1 Read this user's guide and its accessories user's guide carefully before installation.
- 1.1.2 To reduce risk for electric shock, use insulated tools during installation.
- 1.1.3 Recommend to connect OBSTRUCTION LIGHT CONTROLLER to ground system.

- 1.1.4 Do not wear ornaments e.g. rings, necklaces, etc. during installation.
- 1.1.5 DO NOT place any things on the top of unit.
- 1.1.6 If you have to keep OBSTRUCTION LIGHT CONTROLLER, recommend keeping in dry area. (Proper temperature should be between -10°C and 50°C.)

INTRODUCTION

OBSTRUCTION LIGHT CONTROLLER is a controller designed for obstruction light complied with ICAO¹ standards and recommended practices design types A&B, which use for marking of tall structures such as buildings and telecommunication masts with a lit or a blinking rate of 30 ± 10 times per minutes. By using 8-bit microprocessor, OBSTRUCTION LIGHT CONTROLLER can control 1 to 4 Ultra LED obstruction light channels independently.

Note : ¹International Civil Aviation Organization

3.1 ON/OFF Switch : The switch to turn on and off OBSTRUCTION LIGHT CONTROLLER.
3.2 Operating Indicator : The indicator is lit, when the switch is turned on. It indicates the controller is operating.

3.3 Auto/Manual Switch : the switch to select the on/off mode of obstruction lights.

3.3.1 MANUAL : the obstruction lights are turned on and off by manual bypass.

This mode is used in case that user wants to repair or maintenance. The obstruction lights are lit continuously in this mode.

3.3.2 AUTO : the obstruction lights are turned on and off automatically. There are two operation modes :

3.3.2.1 On/Off by timer setting : OBSTRUCTION LIGHT CONTROLLER will be turned on and off depending on time setting. The obstruction lights will operate as the time the user has set or the default setting (default setting: starting time is 7.00 p.m. and ending time is 7.00 a.m.).

3.3.2.2 On/Off by photo sensor : OBSTRUCTION LIGHT CONTROLLER will be turned on and off by photo sensor (If the photo sensor is installed, please read section INSTALLATION.). The obstruction lights will operate when the illumination is below the default setting.

Note : The default setting is enable OBSTRUCTION LIGHT CONTROLLER to be automatically turned on and off by photo sensor or the time setting. If user wants to change the data setting, please read section OPERATION SETTING.

3.4 Indicators light : show status of the obstruction lights (LAMP 1 - LAMP 4)

3.4.1 LAMP 1 : indicates the status of the obstruction light no.1 which is installed at the top of the structure (L1).

3.4.2 LAMP 2 : indicates the status of the obstruction light no.2 which is installed at the side of the structure (L2).

3.4.3 LAMP 3 : indicates the status of the obstruction light no.3 which is installed at the side of the structure (L3) and is opposite of LAMP2.

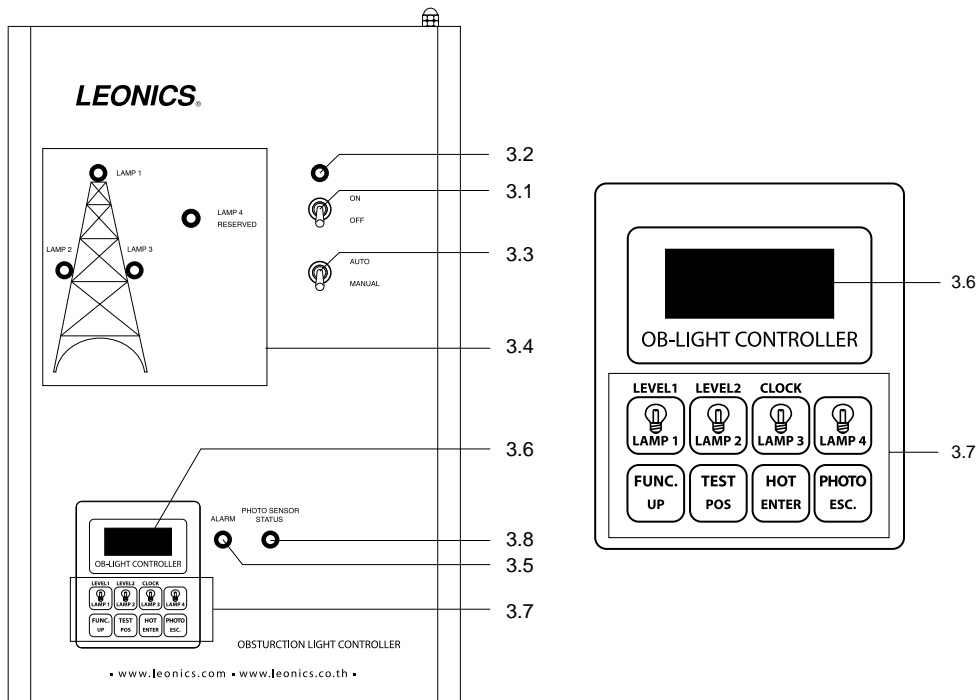
3.4.4 LAMP 4 : indicates the status of the obstruction light no.4 installed at the top of the structure (L4) in case that the two obstruction lights are installed at the top of the structure.

3.5 Alarm : the indicator is lit when the fault is detected.

3.6 LCD Display : shows the present time. If the fault is detected, the alarm will be displayed.

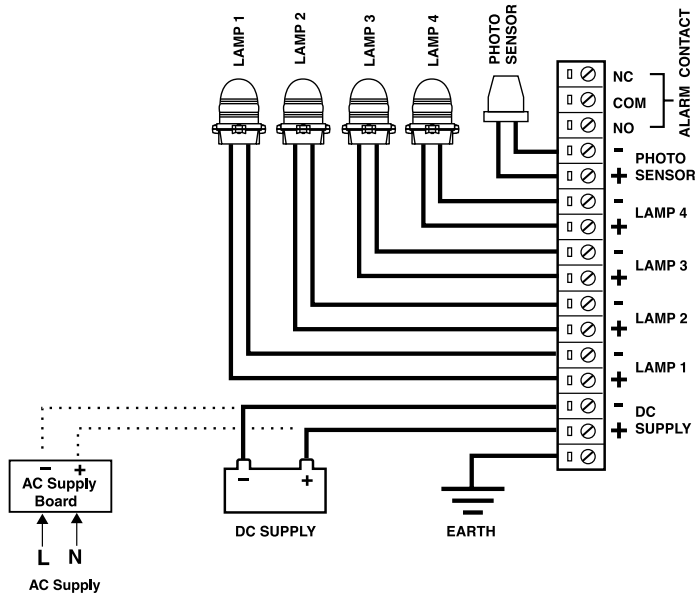
3.7 Buttons : for displaying and setting operation.

FRONT PANEL



3.8 Photo Sensor Status : indicates operating by photo sensor. The indicator will be lit, when the OBSTRUCTION LIGHT CONTROLLER is start operating when it detects that the illumination is low. If the illumination is high, the indicator will be off.

INSTALLATION



- 4.1 Mount the controller unit on the wall by the screws.
- 4.2 Open the cover of the controller and connect all equipments.
- 4.3 Connect the obstruction light cable from Obstruction Lamp 1, Obstruction Lamp 2, Obstruction Lamp 3 and Obstruction Lamp 4 to the LAMP 1, LAMP 2, LAMP 3 and LAMP 4 terminals of OBSTRUCTION LIGHT CONTROLLER respectively.

CAUTION



Reverse Obstruction Lamp 1, Obstruction Lamp 2, Obstruction Lamp 3 and Obstruction Lamp 4 polarity connection may be damage OBSTRUCTION LIGHT CONTROLLER.

- 4.4 Connect the photo sensor cables (if any) to photo sensor terminals of OBSTRUCTION LIGHT CONTROLLER.

- 4.5 Connect ground at Earth terminal.
- 4.6 Connect the Alarm dry contact cables to Alarm contact terminal of OBSTRUCTION LIGHT CONTROLLER as shown in figure. (In case that the remote alarm system is needed.)
- 4.7 Connect the power supply to OBSTRUCTION LIGHT CONTROLLER
 - 4.7.1 Model LOC-2412, LOC-244P and LOC-243P connect to 24 VDC power supplies. Model LOC-4812, LOC-484P, LOC-483P and LOC-484PM connect to 48 VDC power supplies. Connect the DC power supply cables to DC supply terminals of OBSTRUCTION LIGHT CONTROLLER.
 - 4.7.2 Model LOC-2412(A), LOC-4812(A), LOC-243P(A), LOC-483P(A), LOC-244P(A) and LOC-484P(A) are optional, connect to utility power supplies. Connect the AC power supply cable from utility power supplies to AC Input terminals of the AC Supply Board as shown in the diagram.
- 4.8 Close the cover of the controller after connection is completed.


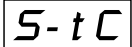
OPERATION SETTING


5.1 General operation setting


User can setup the operation by pressing   buttons simultaneously


and hold them for 5 seconds then press  button to select the data setting.


5.1.1 Time Clock Setting


5.1.1.1 Press  button until the LCD display shows .

5.1.1.2 Press  button to access the clock setting

5.1.1.3 Press  button to select the digit required (hour or minute.).

5.1.1.4 Press  button to change the number in each digit.

To cancel the data setting, press  button.

5.1.1.5 Press  button to confirm the time setting and then the LCD

display will show **PASS**.

5.1.2 ON Time Setting

5.1.2.1 Press **FUNC. UP** button until the LCD display shows **S-t o**.

5.1.2.2 Press **HOT ENTER** button to access the ON time setting.

5.1.2.3 Press **TEST POS** button to select the digit required (hour or minute).

5.1.2.4 Press **FUNC. UP** button to change the number in each digit.

To cancel the data setting, press **PHOTO ESC.** button.

5.1.2.5 Press **HOT ENTER** button to confirm the ON time setting and then the LCD display will show **PASS**.

5.1.3 OFF Time Setting

5.1.3.1 Press **FUNC. UP** button until the LCD display shows **S-t F**.

5.1.3.2 Press **HOT ENTER** button to access the OFF time setting.

5.1.3.3 Press **TEST POS** button to select the digit required (hour or minute).

5.1.3.4 Press **FUNC. UP** button to change the number in each digit.

To cancel the data setting, press **PHOTO ESC.** button.

5.1.3.5 Press **HOT ENTER** button to confirm the ON time setting and then the LCD display will show **PASS**.

5.1.4 Lamp Pattern Setting

5.1.4.1 Press **FUNC. UP** button until the LCD display shows **S- Pt**.

5.1.4.2 Press **LEVEL1 LAMP 1** button (or **LEVEL2 LAMP 2**, **CLOCK LAMP 3**, **LAMP 4** button) to set the lamp pattern of each obstruction light.

5.1.4.3 Press **FUNC. UP** button to select the lamp pattern required and then the

LCD display will show all lamp patterns as the followings:

S-on :The obstruction light is lit continuously.

FLSH :The obstruction light is blink continuously.

S-of :The obstruction light is off.

To cancel the data setting, press **PHOTO ESC.** button.

5.1.4.4 Press **HOT ENTER** button to confirm the lamp pattern setting of each obstruction light and then the LCD display will show **PASS**.

5.1.5 Battery Alarm Clear

5.1.5.1 Press **FUNC. UP** button until the LCD display shows **AL-b**

5.1.5.2 Press **HOT ENTER** button to clear the battery alarm and then the LCD display will show **CLr**.

After the operation setting has been completed, press **PHOTO ESC.** button and the LCD display will return to normal screen automatically.

5.2 Operation setting when the photo sensor is installed

5.2.1 Photo sensor setting when the illumination is high

Press **FUNC. UP** **TEST POS** buttons simultaneously and hold them for 5 seconds.

The LCD display will show **FACT** and **0000** respectively. Then follow these steps.

5.2.1.1 To enter 4-digit password 5678, press **FUNC. UP** button to enter the number and press **TEST POS** button to select the digit required.

5.2.1.2 Press **HOT ENTER** button and then the LCD display will show **S-PH**.

5.2.1.3 Press **HOT ENTER** button and then the LCD display will show the default

setting **PHEn**. The obstruction lights will be enable to turn on and off by photo sensor.

5.2.1.4 Press **FUNC. UP** button and then the LCD display will show **PH45**.

5.2.1.5 Press **HOT ENTER** button and then the LCD display will show **PH45**.

(The third digit will blink).

Note: PH50 means that illumination value measures at 7:00 am.

5.2.1.6 Press **FUNC. UP** button to change the number in each digit and press **TEST POS** button to select the digit required.

5.2.1.7 Press **HOT ENTER** button to confirm the data setting.

5.2.1.8 Press **PHOTO ESC.** button 2 times to exit this operation setting and then the LCD display will return to normal screen automatically.

5.2.2 Photo sensor setting when the illumination is low.

Press **FUNC. UP** and **TEST POS** buttons simultaneously and hold them for 5 seconds. The LCD display will show **FACT** and **0000** respectively. Then follow these steps.

5.2.2.1 To enter 4-digit password 5678, press **FUNC. UP** button to enter the number and press **TEST POS** button to select the digit required.

5.2.2.2 Press **HOT ENTER** button and then the LCD display will show **S-PH**.

5.2.2.3 Press **HOT ENTER** button and then the LCD display will show the default setting **PHEn**. The obstruction lights will be enable to turn on and off by photo sensor .

5.2.2.4 Press **FUNC. UP** button 2 times and then the LCD display will show **PL40**.

5.2.2.5 Press **FUNC. UP** button and then the LCD display will show **PL30**.
(The third digit will blink).

Note: PL30 means that illumination value measures at 7:00 pm.

5.2.2.6 Press **FUNC. UP** button to change the number in each digit and press **TEST POS** button to select the digit required.

5.2.2.7 Press **HOT ENTER** button to confirm the data setting.

5.2.2.8 Press **PHOTO ESC.** button 2 times to exit this operation setting and then the LCD display will return to normal screen automatically.

Note: After the operation setting (item 5.2) has been completed, the user can view the value set by pressing **PHOTO ESC.** and **LAMP 4** button simultaneously

then the LCD display will show the value set **30:45** and view the illumination value measured from the photo sensor by pressing



PHOTO ESC. and **CLOCK LAMP 3** buttons simultaneously then the LCD display will show the illumination value **PH07**.



5.3 Operation setting when the photo sensor is not installed



User can setup OBSTRUCTION LIGHT CONTROLLER not to operate in the photo sensor mode when it is not installed by pressing **FUNC. UP** and **TEST POS** buttons simultaneously and hold them for 5 seconds. The LCD display will show **FACT** and **0000** respectively. Then follow these steps.


5.3.1 To enter 4-digit password 5678, press **FUNC. UP** button to enter the number and press **TEST POS** button to select the digit required.


5.3.2 Press **HOT ENTER** button and then the LCD display will show **S-PH**.

5.3.3 Press  button and then the LCD display will show the default setting. The obstruction lights will be enable to turn on and off by photo sensor .

5.3.4 Press  button and then the LCD display will show .

5.3.5 Press  button to set the obstruction lights are disable to turn on and off by photo sensor. Then the LCD display will change into .

5.3.6 Press  button to confirm the data setting.

5.3.7 Press  button 2 times to exit this operation setting then the LCD display will return to normal screen automatically.


Note: In case of changing OBSTRUCTION LIGHT CONTROLLER to operate in photo sensor mode, follow the steps as shown in sub item 5.3.1 to 5.3.7. Then the LCD display will change  from to .

5.4 Operation setting by using hot key

5.4.1 Lamp pattern setting Type 1

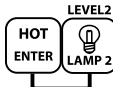
To setup lamp pattern of the obstruction light no.1 (Lamp 1) to blink, the obstruction light no.2 (Lamp 2), obstruction light no.3 (Lamp 3) and obstruction light no.4 (Lamp 4) to be off, press


 buttons simultaneously and


hold them for 5 seconds. The LCD display will show  that indicates the value has set.

5.4.2 Lamp pattern setting Type 2

To set lamp pattern of the obstruction light no.1 (Lamp 1) to blink, the obstruction light no.2 (Lamp 2) and obstruction light no.3 (Lamp 3) to lit, and

obstruction light no.4 (Lamp 4) to be off, press  button simulta-

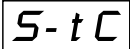
neously and hold them for 5 seconds. The LCD display will show  that indicates the value has set.


After the operation setting has been completed, press  button and hold it until the LCD indicators display the lamp pattern as the user has set.

Note : Model LOC-484PM has 2 obstruction lights installed at the top of the structure (obstruction light no.1 (LAMP1) and obstruction light no.4 (LAMP4)). But only one obstruction light blinks. For instance; if obstruction light no.1 (LAMP1) is fault, obstruction light no.4 (LAMP4) will blink immediately.

5.4.3 Time clock setting



To set time clock, press  buttons simultaneously and hold them

for 5 seconds and then the LCD display will show  and present time

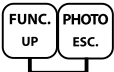
 (The first digit will blink and the next digit will blink respectively).

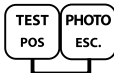
Then follow the steps as shown in sub item 5.1.1.3 to 5.1.1.5

DISPLAY DATA

User can verify data by pressing  and  buttons.

6.1 Display ON/OFFtime of the obstruction lights

6.1.1 Press  buttons simultaneously to display ON time of the obstruction lights.

6.1.2 Press  buttons simultaneously to display OFF time of the obstruction lights.

6.2 Display status of each obstruction light






Press , ,  and  buttons to display status of each obstruction light.

GOOD : The obstruction light is in good condition.

LIUC : The obstruction light consumes under current because it is damaged.

LIOC : The obstruction light consumes over current or short circuit.

6.3 Display lamp pattern of the obstruction lights







Press  and  buttons (or , ,  buttons) simultaneously to display lamp pattern of each obstruction light.

S-on : The obstruction light is lit continuously.



FLSH : The obstruction light is blink continuously.

S-off : The obstruction light is off.


6.4 Display the consumed current of the obstruction lights

Press  and  buttons simultaneously (or press  and , ,  buttons simultaneously) to display consumed current of each obstruction light in mA.

6.5 Display the input voltage

Press  and  buttons simultaneously to display input voltage in volt.

6.6 Operation test

Press  button to check SMART OBSTRUCTION LIGHT CONTROLLER's function after the system is completely connected. If it operates properly, the LCD display will show the present time. If the fault is detected, the alarm will be displayed.

6.7 Alarm display

dCLO : DC power system is below 21 VDC for 24 VDC system or below 42 VDC for 48 VDC system.

dCHI : DC power system is above 29 VDC for 24 VDC system or above 58 VDC for 48 VDC system.

LObt : The clock battery is almost run out of power, the battery needs to be replaced.

LIUC : Lamp 1 Under Current, The obstruction light no.1 consumes too low current because it is damaged or its cables are disconnected.

L2UC : Lamp 2 Under Current, The obstruction light no.2 consumes too low current because it is damaged or its cables are disconnected.

L3UC : Lamp 3 Under Current, The obstruction light no.3 consumes too low current because it is damaged or its cables are disconnected.

L4UC : Lamp 4 Under Current, The obstruction light no.4 consumes too low current because it is damaged or its cables are disconnected.

LIOC : Lamp 1 Over Current, The obstruction light no.1 consumes too high current or short circuit.

L2OC : Lamp 2 Over Current, The obstruction light no.2 consumes too high current or short circuit.

L3OC : Lamp 3 Over Current, The obstruction light no.3 consumes too high current or short circuit.

L4OC : Lamp 4 Over Current, The obstruction light no.4 consumes too high current or short circuit.

PHEr : The OBSTRUCTION LIGHT CONTROLLER is set to be turned on and off by photo sensor but its cables are disconnected.

TABLE OF OPERATION SETTING BY PRESSING KEYS

OPERATION	LEVEL1 LAMP 1	LEVEL2 LAMP 2	CLOCK LAMP 3	LAMP 4	FUNC. UP	TEST POS	HOT ENTER	PHOTO ESC.	LCD DISPLAY
Hot key for lamp pattern setting type 1	● 5 sec.						● 5 sec.		1LEL : The Value has set.
Hot key for lamp pattern setting type 2		● 5 sec.					● 5 sec.		2LEL : The Value has set.
Hot key for time clock setting			● 5 sec.				● 5 sec.		S-tC : Display time setting.
Display ON time of obstruction light					●			●	Display ON time.
Display OFF time of obstruction light						●		●	Display OFF time.
Display illumination value measured by photo sensor			●					●	PH07 : Display illumination value measured by photo sensor.
Display illumination value has set				●				●	30:45 : Display illumination value has set.
Check status of LAMP1 (for other LAMPs, press the other Lamp button)	●	○	○	○					good : good condition. LIUC : LED is damaged or disconnected. LI0C : short circuit.
Check LAMP1 pattern (for other LAMPs, press the other Lamp button)	●	○	○	○	●				S-on : lit FLSH : blink S-off : off
Check consumed current of LAMP1 (for other LAMPs, press the other Lamp button)	●	○	○	○		●			Display consumed current in mA.
Input Voltage					●		●		Display in Volt.
Alarm Silent		●	●						AL-L

Note: ● means that pressing the required button for operation setting.