SmarTLC 3.1

User's Guide

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CHAPTER 1. INTRODUCTION

This Chapter explains the features and functions of SmarTLC for users

1. Overview

This guidance will provide useful information to the client user in a SmarTLC based on the powerful control and simple user interface. Also it will help building operators to configure the entire building light with the SmarTLC perfectly.

This user guidance has following contents

Chapter 1: Introduction Chapter 2: SmarTLC Basic Functional Setup

2. Product Introduction and Features

2.1 Fundamental Notion of SmarTLC

Lighting which is the main factor of losing electric energy in the public or private buildings can be controlled efficiently by using the lighting management system.

SmarTLC can provide the way of saving energy, comfortable business environment and productivity.

Lighting management system with energy saving is essential facility equipment from the operation side of the illumination equipment which is convenient.

Currently the lighting control equipment inside the building introduces the distributed control system of STAND-ALONE method and it has an effect on conservation of electricity and convenient SCENE control.

Lighting management encompasses all systems which go beyond mere "on/off" control. Lighting management tools for use at different stages, either alone or in combination with others, include:

- pre-programmed lighting scenes for different locations and activities
- motion detectors for presence-dependent lighting control, permitting instant activation, timed deactivation or dimming of lighting in response to movement

From this point of view, SmarTLC is Windows-based Complete Control software currently installed on PCs delivered with a Complete Control system. This software is designed to support programming of lighting control equipment, and provide monitor and control functions for any points in the system.

2.2 Product Introduction

SmarTLC is a Windows-based User Interface that provides users direct understanding of the way of managing lighting controls. This software is composed of three parts as like below.

Lighting devices can be viewed as a Device view or Location view. Users can setup all lighting devices in the Device view, and control the lighting objects on the blueprint. [Figure ①]

Users can display all lighting locations in the Drawing Management Windows and manage all lighting controls. Diagrams, images are linked up to the lighting devices and show all the status of them. It makes users can figure out whether the devices are operating correctly. SmarTLC is a perfect central management tool of lighting devices. [Figure ②]

All the management events and warning logs are displayed in the window divided with several tabs. Manager can make log or event report any time. [Figure ③]



CHAPTER 2. SmarTLC Basic Functional Setup

Basic Environment setup and detailed lighting setup are explained for using SmarTLC as a lighting control system.

1. System

1.1 Login/Logout

Click login menu in the system menu or login button in the toolbar. Logout is the same way as login. When you click login menu, login window pops up asking ID and password. SmarTLC setup menu and control function is displayed depending on the users account level.



Control point is displayed by user account level.



Control point is disappeared when user logout.





< Logout with System menu >

< Logout with Toolbar >

1.2 Exit

Close the SmarTLC program.

💡 Smar	TLC 3.0	
<u>S</u> ystem	<u>U</u> ser Manager	<u>C</u> onfiguration
<u>L</u> ogin Lo <u>go</u> ut		🧳 🔊 🕈 🖉 🖉
Auto In	itialize LAP	
Backur Restor	o Database e Database	ice 1
E <u>x</u> it	4	

2. User Management

2.1 User Registration

User Registration prevents a user having no access authority from causing a malfunction or an accident.

User part consists of User's detailed information and User level, Enable items. User has to be registered at first, and if there is no user, register menu is enabled. If user is registered, user information displayed like as below. [Figure ①]

Monitoring Device part include or exclude the devices that user can control and manage. Lighting device control authority can be differentiated by manager access level. [Figure ②, ③]

User Propertie	S						
User							
User ID	✓ User Name	User Level	Enable	Department	Telephone	Description	
s	s	Administrator	Enable				
thunder	James	Administrator	Enable	System Manager	02-6426-0105	Team leader	
All Device			[]	Monitoring D	v <u>M</u> odify evice	Delete	Close
	Lighting Device 1 RELAY PANEL 1-1 (I) PRELAY 1-1-1 RELAY 1-1-2 RELAY 1-1-2 RELAY 1-1-2 RELAY 1-1-3 RELAY 1-1-4 PRELAY 1-1-5 RELAY 1-1-1 RELAY 1-1-1 RELAY 1-1-1 RELAY 1-1-2 RELAY 1-1-2 RELAY 1-1-3 RELAY 1-1-3 RELAY 1-1-3 RELAY 1-1-3 RELAY 1-1-3 RELAY 1-1-4 PRELAY 1-1-5 RELAY 1-1-5 R	nternal Lighting) IP ghts) w	6				۲

Add Users

Add SmarTLC manager or user. Insert users' level and detailed user information. User ID can be inserted from 4 to 10 characters and password can be inserted from 4 to 8 characters. You can choose User level in the User level item. It defines the management authority. (Please refer to the User Access Level Registration)

User Properties	
User <u>I</u> D	
User <u>n</u> ame	
Password	
Confirm	
<u>U</u> serlevel	Administrator 💌
<u>T</u> elelphone	
<u>A</u> ddtional Info	
Etc	
Ena <u>b</u> le	Enable
	OK <u>C</u> ancel

Modify Users

Modify Authority and detailed information of SmarTLC managers and users

User Properties	\mathbf{X}					
User <u>I</u> D	thunder					
Username	James					
Password	****					
Confirm	XXXX					
<u>U</u> serlevel	Administrator 💌					
<u>T</u> elelphone	02-6426-0105					
<u>A</u> ddtional Info	System Manager					
<u>E</u> tc	Team leader					
Ena <u>b</u> le	Enable 💌					
<u> </u>						

2.2 User Access Level Registration

Administrator~User9 Level, SmarTLC control and management authority can be set up depending on 10 User Access Level.

User Access level name can be modified to any name. Function item has Permission(Lock /Unlock), Confirm(Beginning/Always) options.

Ac	cess Level Properties				X
Г	Access Level	Function			
	Name	Function V	Permission	Confirm	
	Administrator	Login	Unlock	💌 Beginning	•
	User1 Level	Exit	Unlock	▼ Beginning	-
	User2 Level	Command	Unlock	▼ Beginning	-
	User3 Level	Modify Configuration	n Unlock	▼ Beginning	-
	User4 Level	Alarm resolution	Unlock	Beginning	-
	User5 Level	Modify Drawing	Unlock	 Beginning 	
	User6 Level	Modify Schedule	Unlock		
	User7 Level	Modify Interlock	Unlock	 Beginning 	-
	User8 Level	Transfer Programs	Unlock	 Beginning 	-
	User9 Level				
	Modify Name				Close

Modify name	×
Administrator	
OK Cancel	

3. Basic Setup

3.1 Master Server IP

SmarTLC can control lighting as a stand-alone and get out of time and distance limitation with network environment.

If SmarTLC use network communication, server IP has to be set up.

Local IP :

Display local computer IP installed SmarTLC automatically.

Master Server IP :

Insert computer IP operating as a SmarTLC Server. If the current computer operates as a server mode, you can just click the 'Set Master Server' button below.

If Local IP is same as Master Server IP, SmarTLC operates as a server mode

SmarTLC operates as a client mode by insert a server IP.

SmarTLC client connects to the server for downloading and synchronizing all the setup information and setup environment.

Master Server IP Propert	ies 🛛 🔀
Local IP 220 . 64 . 65 . 133	Master Server IP 220 . 64 . 65 . 133
Set Master Server	<u>D</u> K <u>C</u> ancel

3.2 Communication

The lighting devices can be managed any time, anywhere if the SmarTLC is connected to the network.

Other existing management systems are only connecting to the server. But SmarTLC can control local lighting devices and also control remote lighting devices by connecting the remote SmarTLC. SmarTLC has no time and distance limitation.

C	ommunication A	Pro	perties						×
Г	Properties								_
	Device Name	ν	Communication Type	Current State	Auto connectir	ig at the startup	Communication St	ate Location (Client]
	GE Lighting Device	1	COM 01-N-8-1-9600	Connected	Connect(Simula	tion)	On-line	Client 1 (220.64.	6
	<								
				www.co.st	· · · 1	a. 1		« [] -	
			Conn	ect(Simulation)	Co <u>n</u> nect	Stop	Setting Lo	cation <u>Close</u>	

Connect(Simulation)

Users can check all the lighting management settings just like the same as connected status by using the 'Connect(Simulation)' mode.

Before connect to the devices, it is better to use 'Connect(Simulation)' mode and check all the settings.

Connect

'Connect' button connect device drivers with hardware. Before try to connect to the devices, you should check the setup status of lighting devices.

Stop

'Stop' button stop the connection between device driver and hardware. SmarTLC can not receive an important data from the lighting devices in the disconnected status. In this case, the lighting devices buffer the data and transfer data when it is connected again. But hardware has a limited memory so if data overflows, previous data can be lost. The Stop mode has to be used in the case of device repairing or changing

Setting

'Setting' button setup the way of communication between device driver and hardware. Hardware has a different connection setting. Basic connection setting in the SmarTLC is RS-232c.

Properties	;	X
Communicat	ion Properties <u>D</u> ataBit 7 Parity None	<u>S</u> topBit 1 ▼
	<u>0</u> K	<u>C</u> ancel

<RS-232C setting>

Location

'Location' button select the SmarTLC System which hardware will be connected Connected Location can be local computer or SmarTLC Client in remote.

If you select the 'Location', the corresponding computer operates the device driver and transfers the hardware information to the server.

But, TCP/IP network communication has to be available between server and client.

If you select the 'Location', the window which selects the corresponding computer shows up. If you want to operate local computer, you select the local computer which has local IP or '127.0.0.1'. '127.0.0.1' network address recognize that it is local IP

Client Location	×
CLIENT Information	
Client 1 (220.64.65.133)	•
<u> </u>	<u>C</u> ancel

3.3 Event

The hardware system of SmarTLC specifies the event type sending to the each server and event code to check out client login, logout information and connection status.

Users can make their own event code setting, sound effect or display effect in the window.

GE Lighting					
Events	Commands				
A-CM (Communication Fail), A-PF (LAP Communication Fail) A-RF (Relay Fail), N-OFF (Off-line) N-ON (On-line), NOCLOCK (Time Clock Fail) OFF (OFF), ONOFF (OFF), RRDC1 (RRDC1 Fail), RRDC2 (RRDC2 Fail) RRDC3 (RRDC3 Fail), RRDC4 (RRDC4 Fail) NOPROGRAM (No Programs)	C-01 (ON Command) C-02 (OFF Command) C-03 (Request Relay On/Off Status) C-04 (Request Relay Fail Status) C-51 (Properties) C-52 (Request Relay Status)				
Client					
Events					
CONNECT(Connected), DISCONNECT(Disconnected), LOGIN(Login), LOGOUT(Logout)					

<Event List>

Event Infomation					
Code	A-CM				
Desc <u>r</u> iption	Communication Fail				
Color					
lco <u>n</u>	Change Icon				
Sound					
Filename(wav)					
Option					
🔽 Display Event					
Apply Graphic Object					
🔽 <u>M</u> ake Alarm Ever	nt				

Event color

User can decide event log color in the event log window when event take places using the event color. Event color can be expressed by any color what computer can do. If you want to change event color, click the squared color.





If there is no color you want to select, click the 'other' button and click the 'user customized color' button again. You can make your own event log color.

Now, the event text color expressed what you selected color in the event log window.

Event Icon

Event icon setup the corresponding icon to the window when event take place. Icon can be expressed differently by the event type.

Sound

Sound is played when the corresponding event take place. If sound is wave file for windows, any sound can be played.

Sound clip has to be coped into the sound folder of installed SmarTLC folder. All the sound files in the sound folder are loaded in the combo box. You can select the sound and listen it by clicking the play button.

_ <u>S</u> ound		
Filename(wav)	ALARM.WAV	
	None	
	ALARM.WAV	

Option

Display event (Display events in the event window) :

If this option is checked, display the information of event log in the event log window

Apply graphic object (Display the event in the blueprint) :

If this option is checked, display the information of event in the blueprint.

Make alarm event (Handle the event as an alarm) :

If this option is checked, corresponding event is considered as an alarm. The manager should handle this alarm.

(Handling alarm is explained in the function of event display window)

3.4 Group

User can make a virtual group to control the physically separated lighting devices.

ex) In case of controlling the lighting instruments in the first floor, manager can make a first floor virtual group and control them. Other lighting devices in the first floor physically linked to the same hardware.

Lighting devices can be inserted to the device list by Drag & Drop

Group Properties		
Group List	Device List (DRAG AND DROP)	
Name $ abla$	Device Name	tion
Group 1 (First Floor Lights)	RELAY 1-1-1 500-1-1-1-0-0 1 Buik	ding-1 Floor
	RELAY 1-1-2 500-1-1-2-0-0 1 Build	ding-1 Floor
	RELAY 1-1-3 500-1-1-3-0-0 1 Build	ding-1 Floor
	RELAY 1-1-4 500-1-1-4-0-0 1 Buik	ding-1 Floor
	RELAY 1-1-5 500-1-1-5-0-0 1 Build	ding-1 Floor
	<u>D</u> elete	
	Font	
New Modifu Delete		Close

New Group		
First Floor Lights		
	ОК	Cancel

Modify Group		
First Floor Lights		
	OK	Cancel

3.5 Interlock

Interlock is one of the most convenient functions in SmarTLC. User can control the lighting group or each lighting by controlling the interlocking lighting device.

ex) When the whole lighting is put off, each light of restroom will be put off after 5 seconds and each light of stairs will be put off after 10 seconds.

Interlock								
Name	∑ Interlock	Type Enable	In Case (DRAG AND	DROP)				
Stairs Lights	AND	Enable	Device Name	7	Location	Event	Device	Code
			RELAY PANEL 1-1 (I	nternal Lighting)	1 Building-1 Fl	loor OFF(OFF)	500-1-1	-0-0-0
			1					
			Command (DRAG AN	D DROP)				
			Device Name	⊽ Lo	cation	Command	Delay Time	Device Code
			RELAY 1-2-1	1 B	uilding-1 Floor	C-02(0FF Command) 🖛	05 Second later 🔫	500-1-2-1-0-0
			RELAY 1-2-2	1 B	uilding-1 Floor	C-02(OFF Command) 💌	10 Second later	500-1-2-2-0-0
<								
New	Modify	Delete						Close

New/Modify/Delete

There is no interlocking history in the SmarTLC for the first time. Interlock setup can be different depending on the environment of each site. Manager should setup directly. You can add interlock setting by clicking the 'New' button.

New Interlock		
Put off all restroom ligh	nts	
[OK	Cancel

Modify: change the interlocking name. **Delete:** delete the interlocking item.

Select interlocking hardware and detail setup

Interlocking hardware can be selected by three items.

At first, select the interlocking condition. Interlocking condition can be checked out in the interlock type.

You can enable interlocking item or disable it.



<	Select	interlock	type>
---	--------	-----------	-------

Name ∇	Interlock Type	Enable
Stairs Lights	OR 💌 🔻	Enable 💌
		Disable Enable

< Select interlock enable item >

If interlocking condition is setup, the hardware should be selected. Hardware display window consists In Case list and Command list

In Case (DRAG AND DROP)							
Device Name	Δ	Location		Event		Device	: Code
RELAY PANEL 1-1 (Internal Lighting	9)	1 Building-1 Fl	loor	OFF(OFF)		500-1-1	-0-0-0
Command (DRAG AND DROP)	Loca	ation	Commar	nd	Delav Time		Device Code
BELAY 1-2-1	1 Bui	ldina-1 Floor	C-02(0FF		05 Second	later 🔻	500-1-2-1-0-0
RELAY 1-2-2	1 Bui	lding-1 Floor	C-02(0FF	Command) -	10 Second	later ▼	500-1-2-2-0-0

In the In case window, you can drag device and drop it which is in device view. If you want to change command option, double click the item. The event list will show up.

In Case (DRAG AND DROP)				
Device Name	Δ.	Location	Event	Device Code
RELAY PANEL 1-1 (Internal Lightin	ng)	1 Building-1 Floor	OFF(OFF)	500-1-1-0-0-0

5	elect Event			X
	Event Code	V	Description	
	A-CM		Communication Fail	
	A-PF		LAP Communication Fail	
	A-BE		Relay Fail	
	N-OFF		Off-line	
	N-ON		On-line	
	NOCLOCK		Time Clock Fail	
	NOPROGRAM		No Programs	
	OFF		OFF	
	ON		ON	
	ONOFF		ON/OFF	
	RRDC1		RRDC1 FAIL	
	RRDC2		RRDC2 FAIL	
	RRDC3		RRDC3 FAIL	
	RRDC4		RRDC4 FAIL	
				!

If you double click the Command item, event list shows up and you can select the appropriate event in the command list. And also you can select the delay time for interlocking.

The delay time can be selected the maximum 60 minutes. The first 1 minute can be selected per 5 second.

If you select delay time, the target device will be operated after the delay time.

Device Name	∇ Location	Command	Delay Time	Device Code
RELAY 1-2-1	1 Building-1 Floor	C-02(OFF Command) 🔻	05 Second late 💌	500-1-2-1-0-0
RELAY 1-2-2	1 Building-1 Floor	C-02(OFF Command) ▼	05 Second later 10 Second later 20 Second later 20 Second later 30 Second later 30 Second later 40 Second later 45 Second later 50 Second later 55 Second later 1 Minute later 2 Minute later	500-1-2-2-0-0

5	elect Event			×
	Event Code	V	Description	
	C-01		ON Command	_
	C-02		OFF Command	
	C-03		Request Relay On/Off Status	
	C-04		Request Relay Fail Status	
	C-51		Properties	
	C-52		Request Relay Status	
				_

3.6 Schedule(software)

Lighting on/off schedule can be applied to all the lighting devices, and also schedule automatically calculate the seasonal sunrise/sunset time.

SmarTLC controls all the registered hardware by schedule. But this schedule function can be operated only when the SmarTLC is operating.

For example, if system is turned off or the SmarTLC is not in the process, the schedule is not working. In this case, you should use hardware provided schedule.

You can add, modify, and delete schedule in the schedule list. [Figure $\ \mbox{Cl}$]

The devices applied by schedule can be selected or delete. [Figure $\ {\mathfrak Q} \$]

Lighting on/off time is effectively scheduled in detail and sunrise/sunset time can be applied together. [Figure $\$]



New Schedule

SmarTLC provides the software schedule that user can register without limit. Unlimited schedule registration enables precise control lighting on/off command. If you click the 'New' button, New Schedule window pops up.

New Schedule

 Weekday Lighting Schedule

 OK

Modify Schedule

Modify schedule name. If the schedule name has not correct meaning, you can change schedule name.

Select the schedule in the list and click the 'Modify' button. Modify window shows up.

Modify Schedule	×
Holiday Lighting Schedule	
OK Cancel	

Delete Schedule

If you delete schedule, all detail schedule information will be deleted. You should be careful when you delete it.

Select the schedule in the list and click the 'Delete' button. Delete confirm message shows up.



Add Device

You need devices for scheduling. Select a device to be scheduled, drag it from the device view to the device list and drop the selected device.

🖃 🌉 Device View		~
📄 🌆 GE Lighting	Device 1	
🚊 🚺 RELAY	PANEL 1-1 (Internal L	ighting)
📔 👘 🖓 REL	AY 1-1-1	=
📔 🚽 🖓 REL	.AY 1-1-2	
📔 🚽 🔐 REL	LAY 1-1-3	
REL	.AY 1-1-4	_
📔 🔄 🔐 REL	.AY 1-1-5	
📄 📴 RELAY	PANEL 1-2	
REL	LAY 1-2-1	
📔 🔤 🙀 REL	AY 1-2-2	
🛛 🔤 REL	LAY 1-2-3	
📔 🔤 🔐 REL	AY 1-2-4	~
Device View	Location View	
Device Name 🗸 🗸	Location	Device Code
RELAY 1-2-1	1 Building-1 Floor	500-1-2-1-0-0
RELAY 1-2-2	1 Building-1 Floor	500-1-2-2-0-0
RELAY 1-2-3	1 Building-1 Floor	500-1-2-3-0-0
RELAY 1-2-4	1 Building-1 Floor	500-1-2-4-0-0
RELAY 1-2-5	1 Building-1 Floor	500-1-2-5-0-0
-		
	0.1	
RELAY 1	-2-1]	

Control schedule setup

Daily control schedule should be setup after registering the device. Control schedule is easy to setup. You just click mouse left button at the first of schedule and move to the end of schedule. If you click mouse right button, the extended menu show up for detail setting.

P <u>r</u> operties <u>D</u> elete	
First Command Second Command)
<u>C</u> opy <u>P</u> aste Delete <u>A</u> ll	

Properties:

8 scheduling can be setup in a day and command type has [time, sunrise+, sunrise-, sunset+, sunset-] option and command has [none, on command, off command] option.

Total 4 schedules can be added, and each schedule time setup can be specified.

If you click 'sort' button, the schedules are sorted by time order.

F	roperties (M	ON)					
[
	Command Type	Time	• 7	÷H	40 📫 M	Command	ON Command 💌
	Command Type	Time	• 9	÷H	40 📫 M	Command	OFF Command 💌
	Command Type	Time	• 0	÷H	0 🕂 М	Command	ON Command
	Command Type	Time	• 0	€н	0 🕂 м	Command	OFF Command 🗨
	Command Type	Sunrise-	• 0	÷H	0 ÷ M	Command	None
	Command Type	Lime Sunrise- Sunrise+	0	÷H	0 📫 M	Command	None
	Command Type	Sunset- Sunset+	V3 (o	÷H	0 🕂 M	Command	ON Command 💌
	Command Type	Time	• 0	÷H	0 ÷ M	Command	OFF Command
ľ					0	Èort	<u>O</u> K <u>C</u> ancel

First Command/ Second Command:

Schedule has two commands. First Command is setup when the schedule starts. Second Command is setup when the schedule ends.

Time Command:

Setup the control time option.

Sunrise Command:

Sunrise Command has 'Sunrise-', 'Sunrise+' option and means before and after sunrise. Setup time means 1 hour, 2 hour.

ex) If control time is one hour before sunrise calculated by SmarTLC, select 'Sunrise-' option.

Sunset Command:

Sunset Command has 'Sunset -', 'Sunset +' option and means before and after sunset. ex) If control time is one hour before sunset calculated by SmarTLC, select sunset -' option.

None: Select 'None' when there is no control command.

ON Command: Select when you need light on control.

OFF Command: Select when you need light off control.

Copy: Copy the registered schedule. Scheduled information is stored in the windows memory and copied schedule can be pasted to other schedule setting. **Paste:**

Paste the copied schedule which is copied in the memory.

Delete All:

Delete all scheduled information. 'Delete All' option applied to only corresponding day. You should be careful when use delete all option because there is no confirm message.

Holiday Register

When schedule time and control setting finished, corresponding schedule has to be registered in the calendar.

There is no special setting in week day or Sunday, but 'Holiday1~3' need separate setting. If you want to set holiday, click the calendar. User can select three types of holiday. When mouse is clicked, holiday changes like 'Holiday1'→ 'Holiday2'→ 'Holiday3' order.

JUL	AUG) SEI	P (ост	NOV	DEC
SUN	MON	TUE	WED	THU	FRI	SAT
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27 _{H1}	28 _{H2}	29 _{H2}	30
31						
JAN	FEB	MA	R /	APR	MAY	JUN

3.7 Astronomical time clock

Sunrise/Sunset time is dependent on region and country. Automatic lighting on/off control is tightly coupled with sunrise/sunset time.

Select country, city and click 'Setting' button, SmarTLC automatically calculate the sunrise/sunset time with latitude, longitude, and time zone generation.

If you change date and click the 'Calculation' button, it calculates again with changed date. Sunrise/Sunset time can be applied to schedule setup or LAP schedule setup.

Astronomical Time Cl	ock		×
Location Latitude Longitude Time Zone Select Locațion Canada, Ontario	43.32 74.80 5	N 43.19 W 74.48	Date August 1, 2006 Sunrise : 04 : 48 Sunset : 19 : 22
Burlington	•	<u>S</u> etting	Calculation

4. GE Lighting

4.1 Link/LAP Time Clock

Setup or inquire a LAP/LINK time.

[Set LINK/LAP Clock] is change the LAP/LINK time of corresponding system.

[Request LINK/LAP Clock] request the current setting of LAP/LINK.

[Synchronize] synchronize the LAP/LINK time of corresponding system with current time of PC.

LINK / LAP	Time Properties 🛛 🔀
SYSTEM	GE Lighting Device 1 (Y.V.R [63 p]
LINK / LAP Time	
August 19,	2005 I:54:56 PM
	Set LNIK / LAP Clock
-PC Time	
August 19,	2005 TI:54:56 PM
Request LINK /	LAP Clock Synchronize Close

4.2 LAP Schedules

Setup the lighting devices linked with LAP hardware. If you click the 'Select Relays' button, you can select necessary devices from the available device list.

If you select system and LAP, you can see the schedule list and lighting device list.

LAP (A~L): Particular sched	lule setup by each lap.
-----------------------------	-------------------------





Include Relays from the available Relays list.

I	LAP		Available Rela	iys			Included Relays	
vice Name	7	Device Name	∇ Schedule Name	e Location D	e	Device Name	∇ Location	Device Code
AY ANEL 1-3		RELAY	None	i Building-T nov 5		RELATION INSTU	I Building-1 Floor	500-1-3-10-0-0
		RELAY 1-3-2	None	1 Building-1 Floor 5	ic i	FELAY 1-3-7	1 Building-1 Floor	500-1-3-7-0-0
		PELAY 1-3-3	None	1 Building-1 Floor)C	RELAY 1-3-8	1 Building-1 Floor	500-1-3-8-0-0
		FELAY 1-3-4	None	1 Building-1 Floor 5	IC .	RELAY 1-3-9	1 Building-1 Floor	500-1-3-9-0-0
	_	FELAY 1-3-5	None	1 Building-1 Floor 5	C			
	0	FELAY 1-3-6	None	1 Building-1 Floo (2)	0			3
	-			-				9
					>>			
					<<			
						N		
		<			•			

4.3 Daylight Saving

Daylight saving option.

Daylight Savings Properties						×				
<u>S</u> YSTEM		GE Li	ghting) Devid	ce 1				•	
Daylight Savings #1										
Begin Date		Sunda	ψ <i>,</i>	Apri	1 0	3, 200	15	•	🗖 Disable	
End Date		Sunda	у,	Octob	ber 3	0, 200	15	•		
Ctober, 2005										
Daylight Savings ‡	Sun	Mon	Tue	Wed	Thu	Fri	Sat			
Begin Date	20	3	4	28 5	6	30 7	8	Ŧ	🔽 Disable	
End Date	9 16	10 17	11 18	12 19	13 20	14 21	15 22	-		
	23	24 31	25 1	26 2	27 3	28 4	29 5 -			
Today: 1/7/2005						<u>C</u> lose				
										_

4.4 RPhone Devices

Setup the lighting device operating option when phone is connected to RPhone or phone is disconnected.

Answer and off function item has [Disable, Enable, Follow Relay]. If user selects 'Follow Relay' option, you can choose RELAY to co-operate.

RPhone consists LINE1, LINE2 and 10 RPhones can be installed.

1	Telephone Line Properties					
	<u>s</u> ystem	GE Lighting De	wice 1	•		
	Device Name 🔻		1st Line			
	RPhone #0		Answer	Disable		
	RPhone #1 RPhone #2		<u>R</u> elay			
	RPhone #3 RPhone #4		Off Function	Disable		
	RPhone #5 RPhone #6		R <u>e</u> lay	Disable Enable Follow Relay		
	RPhone #7					
	RPhone #8		2nd Line			
	RPhone #9		Answer	Disable		
			Relay			
			O <u>f</u> f Function	Disable		
			Relay			
	1			<u>C</u> lose		

4.5 RPhone Codes

Create representative phone code to control relays. When user press the representative phone code using phone, related relays are controlled.

Select relays in the available relays list and move to the included relays list.

Representative phone code controls the included relays.

SYSTEM / PHONECODE Available Relays GE Lighting Device 1 Image: Control of the second sec
GE Linking Device 1 ▼ Cole ▼ Name 1 PHONECODE 1-1 2 PHONECODE 1-2 3 PHONECODE 1-3 RELAY 1-3:3 1 Building 1 Floor RELAY 1-3:4 1 Building 1 Floor RELAY 1-3:5 1 Building 1 Floor RELAY 1-3:6 1 Building 1 Floor RELAY 1-3:7 1 Building 1 Floor
Cole ▼ Name ▼ Location 1 PHONECDD 1-1 Building-1 Floor Building-1 Floor 2 PHONECDD 1-2 1 Building-1 Floor 3 PHT COD 1-3 Building-1 Floor Building-1 Floor RELAY 1-3:3 1 Building-1 Floor Building-1 Floor RELAY 1-3:4 1 Building-1 Floor Building-1 Floor RELAY 1-3:5 1 Building-1 Floor Building-1 Floor RELAY 1-3:6 1 Building-1 Floor Building-1 Floor RELAY 1-3:7 1 Building-1 Floor Building-1 Floor RELAY 1-3:7 1 Building-1 Floor S
1 PHONECODE 1-1 2 RELAY 1-3-1 PHONECODE 1-2 3 1 Building-1 Floor RELAY 1-3-2 1 Building-1 Floor RELAY 1-3-3 1 Building-1 Floor RELAY 1-3-5 1 Building-1 Floor RELAY 1-3-5 1 Building-1 Floor RELAY 1-3-6 1 Building-1 Floor RELAY 1-3-7 1 Building-1 Floor RELAY 1-3-10 RELAY 1-3-8 1 Building-1 Floor RELAY 1-3-3 1 Building-1 Floor
2 PHONECODE 1-2 RELAY 1-3.2 1 Building-1 Floor 3 PHONECODE 1-3 Building-1 Floor I Building-1 Floor RELAY 1-3.3 1 Building-1 Floor I Building-1 Floor I Building-1 Floor RELAY 1-3.5 1 Building-1 Floor I Building-1 Floor I Building-1 Floor RELAY 1-3.7 1 Building-1 Floor I Building-1 Floor I Building-1 Floor RELAY 1-3.7 1 Building-1 Floor I Building-1 Floor I Building-1 Floor RELAY 1-3.7 1 Building-1 Floor I Building-1 Floor I Building-1 Floor
3 PH COD 13 RELAY 1-3:3 1 Building-1 Floor I Bu
RELAY 134 1 Building: Floor RELAY 135 1 Building: Floor RELAY 137 1 Building: Floor RELAY 137 1 Building: Floor CRELAY 137 1 Building: Floor
RELAY 1-3-5 1 Building-1 Floor RELAY 1-3-6 1 Building-1 Floor RELAY 1-3-7 1 Building-1 Floor Wilding 1 Floor ***
FELAY 1-3-6 1 Building-1 Floor RELAY 1-3-7 1 Building-1 Floor
RELAY 1-3-7 1 Building-1 Floor
>>
»» «
>>> (<)
New Modify Delete Close

New PhoneCode				
PhoneCode	1			
Name	Inside of Lobby			
	<u>O</u> K <u>C</u> ancel			

4.6 LAP Clear

Delete data stored in the Relay device. Runtime data, On/off cycles, Relay fail item can be deleted. LAP Clear can apply to the only one LAP or All LAPs

Reset Runtime for All relays: Reset Runtime

Reset On/Off Cycles for All relays: Reset On/Off Cycles

Clear Relay Failure for All relays: Delete relay fail data.

Leave Relays in scheduled On mode for All relays: Leave Relays in scheduled On mode. Leave Relays in scheduled Off mode for All relays: Leave Relays in scheduled Off mode. Clear Shed Mode for All relay: Clear Shed Mode.

LAP Clear					
SYSTEM	GE Lighting Device 1				
LAP	RELAY PANEL 1-1	•			
this LAP only		ALL LAPs			
	Reset Runtime for ALL relays	Reset Runtime for ALL relays			
Reset On/Off Cycles for ALL relays		Reset On/Off Cycles for ALL relays			
j.	Clear Relay Failure for ALL relays	Clear Relay Failure for ALL relays			
Leave F	Relays in scheduled ON mode for ALL relays	Leave Relays in scheduled ON mode for ALL relays			
Leave F	telays in scheduled OFF mode for ALL relays	Leave Relays in scheduled OFF mode for ALL relays			
	Clear Shed Mode for ALL relays	Clear Shed Mode for ALL relays			
		Close			
4.7 Relay Test

Test all lighting devices linked to the relay by turning on and turning off. Relay test is for checking the device status and operation.

Relay Test			•	×
SYSTEM	GE Lighting Device 1		.]
LAP	RELAY PANEL 1-1		•	1
Device Name	∇ Location	Status		
RELAY 1-1-1	1 Building-1 Floor			
RELAY 1-1-2	1 Building-1 Floor			
RELAY 1-1-3	1 Building-1 Floor			
RELAY 1-1-4	1 Building-1 Floor			
RELAY 1-1-5	1 Building-1 Floor			
		<u>T</u> est	Stop Close	1

4.8 Transfer Programs

Transfer necessary programs between SmarTLC and LAP You can select the LAP and transfer programs or all programs can be transferred.

SYSTEM1, SYSTEM2 tab display the data transferring status of each GE lighting system.

Downloading Programs:

Download SmarTLC programs to the selected LAP. Only modified data is transferred.

Downloading All Programs: Download all programs to the all LAPs.

Uploading System Programs: Upload SmarTLC system programs to the selected LAP.

Uploading LAP Programs:

Upload each Lap programs

Uploading Log data:

Upload log data from the selected LAP

Uploading Runtime data:

Upload Runtime data from the selected LAP.

Transfer Programs		×
SYSTEM / LAP GE Lighting Device 1 Device Name Location RELAY PANEL 1-1 1 Building RELAY PANEL 1-2 1 Building RELAY PANEL 1-3 1 Building	▼ SYSTEM 1 I Floor Uploading DATABASE LAP 1 Checking LAP 1 Waiting Uploading SCHEDULE - M Uploading SCHEDULE - N Uploading SCHEDULE - N Uploading SCHEDULE - Q Uploading SCHEDULE - Q Uploading SCHEDULE - Q Uploading SCHEDULE - R Uploading SCHEDULE - S Uploading SCHEDULE - T Uploading SCHEDULE - U Uploading SCHEDULE - V Uploading SCHEDULE - V Uploading SCHEDULE - V	Downloading Programs Downloading All Programs Uploading LAP Programs Uploading Log data Uploading Runtime data

5. Reports

5.1 Event Report

Event report searches all the logs generated from the SmarTLC.

Search condition items are consisted with 'Data Range', 'Device List', 'Event Type', and ' Resolution' .

lie Hange				EventType	Resolution
Begin Date	August 1, 2005	▼ 12:00:00	AM 📩	Alarm Event	Resolved
End Date	August 19, 2005	▼ 11:59:59	PM 🔹	✓ Normal Event	Vnresolved
vice List (DRA	.G AND DROP)		Status Li	ist	
evice Name	C Location 2 (ELECTRICAL ROOLYVR [159 s]-Main		System All Statu	√ Events is	
ELAY PANEL 1-6	0 (ELECTRICAL ROOLYVR [159 s]-ITB L 3Z	Cone M			
ELAY PANEL 1-1 ELAY 1-52-8 (CC1	30 (ELECTRICAL ROCYVR (159 s)-ITB L 1 Z 7 EM05-13 C3040) YVR (159 s)-ITB L 3 Z	ione E ione M			
ELAY 1-52-9 (CC1	"EM05-20 3074 2A) YVR [159 s] ITB L 3 Z	ione M			

Device List

Select device which generated events. Select devices from the Device view and drag them to device list.

Status List

Select events which generated from the selected device.

Default search condition is for 'All Status'. If you want to search specific event, click the mouse right button and call the following sub menu.



`If you select 'Select Events' menu, Select event window shows up.

Select all events what you want to search, then click 'OK' button. Now you can search and make a report about selected events.

5	elect Event		×
	Event Code 🛛 🗸	Description	
	A-CM	Communication Fail	_
	A-PF	LAP Communication Fail	
	A-BF	Relay Fail	
	N-OFF	Off-line	
	N-ON	On-line	
	OFF	OFF	
	ON	ON	
	ONOFF	ON/OFF	
	RRDC1	RRDC1 FAIL	
	RRDC2	RRDC2 FAIL	
	RRDC3	RRDC3 FAIL	
	RRDC4	RRDC4 FAIL	
		<u> </u>	

Report

Click the 'Report' button. The following event report window what you searched shows up. If you want to save event report as an excel file, click 'Export' button. You can also preview and print it.

Time	Device Name	Location	Status	User	Description	Device Code	Resolved Time	Resolver	Resolution Rep
2004-10-05 18:18:	RELAY 1-1-4	1 Building-1	C-01(ON Command)	s(s)		500-1-1-4-0-			
2004-10-05 18:18:	RELAY 1-1-4	1 Building-1	C-02(OFF Command)	s(s)		500-1-1-4-0-			
2004-10-05 18:19:	RELAY 1-1-4	1 Building-1	C-01(ON Command)	s(s)		500-1-1-4-0-			
2004-10-05 18:19:	RELAY 1-1-4	1 Building-1	ON(ON)			500-1-1-4-0-			

5.2 Log Report

Select date range and drag the device from the device view and drop the device list. You can search all device generated logs in this log report.

Log report consists Time, Device name, Location, Status, Mode, Action Initiator, Device code items. All searched data can be saved as an excel file and printed.

Log Report	
Date Range	
Begin Date	Friday , January 07, 2005 💌 12:00:00 AM 🕂
End Date	Friday , January 07, 2005 💌 11:59:59 PM 🕂
Device List (DR/	AG AND DROP)
Device Name	∇ Location
	Report Close

^{5.3} Runtime Report

Runtime report searches runtime data of lighting devices. Devices can be added from the device view by Drag & Drop and there is Daily/Monthly, Trend/Billing options. Searched data can be saved as an excel file and printed.

Date Range
Begin Date Friday , January 07, 2005 💌
End Date Friday , January 07, 2005 💌
Device List (DRAG AND DROP)
LAP/RELAY/GROUP Daily Trend
Price Per KW 1
Device Name
1
Report Close

5.4 LAP Wiring Documentation Report

You can search lighting devices linked to the LAP.

Lap Wiring Report				×
Device List (DRAG AND DROP)				1
Device Name	V	Location		
GE Lighting Device 1		1 Building-1 Floor		
		<u>R</u> eport	<u>C</u> lose	

5.5 LAP Schedule Report

You can search schedule of lighting devices linked to the LAP.

LAP 5	Chedule Report				×
_ Devi	ice List (DRAG AND DROP)				
D	evice Name	ν	Location		1
GE	E Lighting Device 1		1 Building-1 Floor		
Ľ					
			<u>R</u> eport	<u>C</u> lose	

5.6 System Schedule Report

You can search system schedule.

Sy	stem Schedule Report				×
[evice List (DRAG AND DROP)				_
	Device Name	ν	Location		
	GE Lighting Device 1		1 Building-1 Floor		
			Report	Close	
					_

5.7 Telephone Override Device Report

You can search detailed setup information of RPhone.

Device List (DRAG AND DROP) Device Name V Location GE Lighting Device 1 1 Building-1 Floor	
Device Name V Location GE Lighting Device 1 1 Building-1 Floor	
GE Lighting Device 1 1 Building-1 Floor	
<u>R</u> eport <u>C</u> lose	

5.8 Telephone Code Report

You can search Relay list linked with the telephone code.

Telephone Code Report		×
Device List (DRAG AND DROP)		
Device Name 🗸	Location	
GE Lighting Device 1	1 Building-1 Floor	
	<u>R</u> eport	<u>C</u> lose

5.9 Switches Report(PMS, PSS, GLOBAL PSS)

You can search registered Switches (PMS, PSS, GLOBAL PSS).

Switch Report (PMS,PSS,GLO	BAL PSS)		<
Device List (DRAG AND DROP)			
Device Name	Location		
GE Lighting Device 1	1 Building-1 Floor		
	<u>R</u> eport	<u>C</u> lose	
			1

5.10 LAP Relay Cross ref. Report

You can search properties of relays.

LAP Relay Cross Ref. Repor	t	×
C Device List (DRAG AND DROP)		
Device Name	∇ Location	
GE Lighting Device 1	1 Building-1 Floor	
	<u>R</u> eport	<u>C</u> lose

5.11 Relay Common Report

You can search lighting devices setup as common relay.

LAP Relay Common Repor	t	
Device List (DRAG AND DROP)		
Device Name	∇ Location	
GE Lighting Device 1	1 Building-1 Floor	
	<u>R</u> eport	<u>C</u> lose

5.12 Special Date & Daylight Saving Report

You can search special date and daylight saving information.

Sp	ecial Date & Daylight Saving	j Report	×
	evice List (DRAG AND DROP)		
	Device Name $ abla$	Location	
	GE Lighting Device 1	1 Building-1 Floor	-
		>	
		-	
		<u>H</u> eport <u>C</u> lose	

5.13 Schedules Report(Software)

You can search detailed schedules which are setup in the SmarTLC. Detailed schedules have daily settings and holiday settings. Searched schedules can be saved as an excel file and printed.

5	Chdules Repo	chdules Report(Software)						
	Availab	le Schedule:	3		Selecto	ed Schedu	les	
	Schedule Name⊽	Year	Enable		Schedule Name⊽	Year	Enable	
	Lighting Schedule	2004	Enable		Holiday Schedule	2004	Enable	
				>>> <<				
					<u>R</u> epo	ort	<u>C</u> lose	

CHAPTER 3. SmarTLC User Interface and Practical Usage

Explain the User interface of SmarTLC for efficiency of lighting control management

1. User Interface Composition

1.1 Main Toolbar



Main Toolbar provides following functions

Icon	Function
*	Login
٢	Logout
	Device View show/hide
	Drawing View show/hide

1.2 Graphic Toolbar



Graphic Toolbar provides following functions

Icon	Function
J.	Drawing Mode
1st Building - 2nd Floor	Drawing Location Select
100 % 💌	Drawing Zoom Ratio Select
% 0	Zoom In/Out
<u>\$</u>	Previous Drawing
	Move to the Top Level Drawing
C.	Next Drawing
1	Move up to the High Level
•	Move down to the Low Level

* Click the Drawing Mode Button for editing drawing. Edit Toolbar shows as follows



Edit Toolbar is explained in the Drawing management page

1.3 Device/Location View

Device View displays the relationship with each device. Location View displays the location of devices.



1.4 Drawing View

Drawing View visualizes the location and status of devices on the drawing by using graphical objects and design tools

The way of Drawing editing and Device Setting is explained in the Drawing Management Chapter. Graphical Objects provide the variety of visualization properties, which are like picture changing, color changing, and image flickering. SmarTLC manager can make perfect monitoring system with these graphical objects.



1.5 Event View

Event View displays every events and logs generated from the devices. It composes Event, Alarm, and Alarm Resolution tab.

vent View								
Event Alarm Alarm	Reso	lution						
Time	V	Device Name	Location	Status	User	Description	Device Code	^
2004-10-14 11:43:49		GE Lighting Device 1		N-ON(On-line)			500-1-0-0-0-0	
2004-10-14 11:43:51		RELAY PANEL 1-1		C-01(ON Comm	n s(s)		500-1-1-0-0-0	
2004-10-14 11:43:52		RELAY 1-1-1		ON(ON)			500-1-1-1-0-0	
2004-10-14 11:43:52		RELAY 1-1-2		ON(ON)			500-1-1-2-0-0	
2004-10-14 11:43:52		RELAY 1-1-3		ON(ON)			500-1-1-3-0-0	
2004-10-14 11:43:52		RELAY 1-1-4		ON(ON)			500-1-1-4-0-0	
2004-10-14 11:43:52		RELAY 1-1-5		ON(ON)			500-1-1-5-0-0	
2004-10-14 11:43:52		RELAY 1-1-6		ON(ON)			500-1-1-6-0-0	
2004-10-14 11:43:52		RELAY 1-1-7		ON(ON)			500-1-1-7-0-0	
2004-10-14 11:43:52		RELAY 1-1-8		ON(ON)			500-1-1-8-0-0	
2004-10-14 11:43:52		RELAY 1-1-9		ON(ON)			500-1-1-9-0-0	
2004-10-14 11:43:52		RELAY 1-1-10		ON(ON)			500-1-1-10-0-0	
2004-10-14 11:43:52		RELAY 1-1-11		ON(ON)			500-1-1-11-0-0	
2004-10-14 11:43:52		RELAY 1-1-12		ON(ON)			500-1-1-12-0-0	
2004-10-15 15:21:07		GE Lighting Device 1		N-ON(On-line)			500-1-0-0-0-0	
2004 10 15 15-22-54 <		CE Liabling Douise 1		M OFFICIER (ma)			500 1 0 0 0 0	×

1.6 Text View

Click the Drawing View icon to hide Drawing view then the Text View shows up. The sub menu is same as Device view menus.

💡 Sma	rTLC 3.0						
System	User Manager	Document Confi	guration GE Lighting	Reports	View Help		
	💠 🖾 🕻	🧃 📗 🎤 🛛 Bu	ilding		• 100 % • 💰 🕷	1 🗊 🥵	1 Į
Time	V	Device Name	Location	Status	Device Code		
2004-10-	14 11:43:52	RELAY 1-1-1		ON(ON)	500-1-1-1-0-0		
2004-10-	14 11:43:52	RELAY 1-1-2		ON(ON)	500-1-1-2-0-0		
2004-10-	14 11:43:52	RELAY 1-1-3		ON(ON)	500-1-1-3-0-0		
2004-10-	14 11:43:52	RELAY 1-1-4		ON(ON)	500-1-1-4-0-0		
2004-10-	14 11:43:52	RELAY 1-1-5		ON(ON)	500-1-1-5-0-0		
2004-10-	14 11:43:52	RELAY 1-1-6		ON(ON)	500-1-1-6-0-0		
2004-10-	14 11:43:52	RELAY 1-1-7		ON(ON)	500-1-1-7-0-0		
2004-10-	14 11:43:52	RELAY 1-1-8		ON(ON)	500-1-1-8-0-0		
2004-10-	14 11:43:52	RELAY 1-1-9		ON(ON)	500-1-1-9-0-0		
2004-10-	14 11:43:52	RELAY 1-1-10		ON(ON)	500-1-1-10-0-0		
2004-10-	14 11:43:52	RELAY 1-1-11		ON(ON)	500-1-1-11-0-0		
2004-10-	14 11:43:52	RELAY 1-1-12		ON(ON)	500-1-1-12-0-0		
				User	ID : s(s) User Level : Administra	tor C Drive	1.1 GB Fre

2. Device View

2.1 Create Location

Register the real location where the devices will be installed (ex: building, floor)



When click the right mouse button in the device view, the 'New Device' submenu shows up. Click the Create Location menu. Location Properties window shows up as follows. Location Properties window has Building property, Floor property tabs. Create a new building and floor location. The order of registration should be like 'Building' \rightarrow 'Floor' order.

Location Proper	ties				×
Building Property	Floor Property				
Default Icon	Building No. Name	1 :			
	Image		Find	Add Close	

Building Registration

Select Building property tab and fill out the proper information. If the location is already registered, the 'Add' button is disabled.

Building No:

Building No identifies the each building and can be registered less than 255 buildings.

Name:

SmarTLC manager can make unified building names for easy identification of each building.

Image:

SmarTLC

If you have building blue prints or image files, you can link the location with the selected image. Click the Find button, you can search and select images from the following the search dialog. For the efficient management, keep the building and floor blueprints in the Background folder of

Open						? 🛛
Look in:	🚞 background		•	← 🗈	💣 🎫	
My Recent Documents Desktop My Documents	Blueprint.bmp					
My Computer						
My Network Places	File name: Files of type:	Image Files (bmp,jpg,gif,png,	.tif,emp]	1	• •	Open Cancel

Select Icons:

The selected icon displays on the device view.

Default icon will be displayed at the first time. You can change icon by clicking the icon button. Select icon dialog shows up as follows.



Floor Registration

Select Floor property tab and fill out the proper information. If the location is already registered, the 'Add' button is disabled.

Building No:

Building No can be selected from the list which is already registered in the Building Property. Select the Building No where the floor is located.

Floor No:

Floor No identifies the each floor and can be registered less than 255 floors.

Name:

SmarTLC manager can make unified floor names for easy identification of each floor. **Image, Select Icons:**

Same as the Building Properties tab.

	<u> </u>
Building Property Floor Property	1
Default Icon Building No. 1 Building 🗨	
Floor No.	
Name 1 Floor	
Image Blueprint.bmp	
Find	
Add Close	1

After finishing the registering the building and floor location, the new building and floor information displayed in the device view.

The registered building and floor displays hierarchically.

×
🖃 🏭 Location View
🖻 🌆 1 Building
🖃 🍓 1 Floor
RELAY PANEL 1-2
🛛 🧑 GE Lighting Device 2
RELAY PANEL 2-2
RELAY 2-2-2
SWITCH(PMS) 2-2-2
E Second
GE Lighting Device 1
RELAY PANEL 1-1
RELAY 1-1-2
RFI ΔΥ 1-1-3
Device View Location View

2.2 Create GE Lighting

Manager can register substantial lighting devices (PANEL, SWICTH, RELAY).

The registered lighting devices are communicating with SmarTLC and transmitting the events or system information.

All devices should be registered in the SmarTLC for the regular operation.



When click the right mouse button in the device view, the 'New Device' submenu shows up. Click the 'Create Location' menu. Location Properties window shows up as follows.

Location Properties window composes 'GE Lighting', 'Panel', 'Relay/Switch', 'Relays /Switches'. Select the proper tab and fill out corresponding information.

The order of registration should be like 'GE Lighting' \rightarrow 'Panel' \rightarrow 'Relay/Switch' \rightarrow 'Relay/Switches' order.

G	E Lighting Prop	perties				×	
	GE Lighting Par	nel Relay/Switch	Relays/Switch	nes			
	Default Icon	System No.	1				
		Name					
		Cummnication	SERIAL	○ TCP/IP	C MODEM		
		ing Panel Relay/Switch Relays/Switches					
		Floor	2 Floor		•		
			Switch Relays/Switches No. Te cation SERIAL TCP/IP MODEM ing 1 Building or 2 Floor Add Close				
				Add	Close		



The devices of SmarTLC keep the mutual dependency. The diagram is like bellows

GE Lighting

Select the GE Lighting tab for GE Light device register. If there is an already registered device, add button is disables. GE Lighting means the top level of lighting device and 'GE Lighting Device' text is generated automatically as a default.

System No:

System No can be registered from 1 to 32. System No is an essential logical number to systematize the incoming information from the devices.

Name:

SmarTLC manager can not find a correct device by System No. Making the unique device name can help the efficient management.

Communication:

Select the communication option to communicate with the devices.

Building:

Select the Building where the devices are installed. Manager should register the location information first.

Floor:

Select the Floor where the devices are installed. Floor information should be registered previously.

Select Icons:

The selected icon displays on the device view.

Default icon will be displayed at the first time. You can change icon by clicking the icon button. Select icon dialog shows up as follows.



Panel Registration

Panel is the next level of the GE Lighting. It composes Relay Panel, Switch Panel, and Global Switch Panel

Select Panel number and type. The Name, Building, Floor information is same as GE Lighting registration.

GE Lighting Pro	perties				
GE Lighting Panel Relay/Switch Relays/Switches					
Default Icon	System No.	GE Lighting Device 1			
	Panel No.				
	Panel Type	RELAY PANEL			
	Name				
	Building	None			
	None				
		Add Close	1		

Relay/Switch Registration

Relay/Switch is the low lever of the Panel. Select the System No, Panel No, Device type and number. The Device type composes Relay, Switch(PSS), Switch(PMS) and can select the disable option to the registered device. The Name, Building, Floor information is same as GE Lighting registration. If you select the disable option, the default icon is changed.

GE Lighting Prop	oerties	X
GE Lighting Par	nel Relay/Switc	ch Relays/Switches
Default Icon	System No.	GE Lighting Device 1
	Panel No.	RELAY PANEL 1-1
H	Device Type	RELAY
	Device No.	E 🔹 🗆 Disable
	Name	
	Building	None
	Floor	None
		Add Close

Relays/Switches

Manager can register amount of relays and switches at one time in the Relays/Switches tab. Insert the number of registering relays, Switches(PMS), Switches(PSS) and click the 'Create Device' button.

It is very convenient tab for registering the devices applied same options.

GE Lighting Properties								
GE Lighting Panel Relay/Switch Relays/Switches								
System No. GE Lighting Device 1								
Panel No.	RELAY PANEL	.1-1 💌						
<u>R</u> elays		Create Device						
S <u>w</u> itches (PMS)	0 •	Create Device						
Swi <u>t</u> ches (PSS)		Create Device						
<u>B</u> uilding	None	•						
<u>F</u> loor	None	•						
		Close						

2.3 Client Register

SmarTLC is basically Server/Client structure. It can operate as a server or client depends on program option.

All the accessible Clients IP address is stored in the SmarTLC Server by registering the Client information.



'Create Client' menu register the computer network IP which is installed SmarTLC as a client. If Client is not registered, Server does not allow connecting to the server from other network. For the correct system operation, client network address should be registered.

The client registration window is as follows

Client Properties	;		
Client Property			
Default Icon	Client No.	2	
	Name		
	Client IP	192 . 168 .	0.133
	Building	None	•
	Floor	None	•
-	Local IP	192 . 168 .	0.133
			Setting
		Add	Close

Client Registration

Client No:

There are many clients exist and connected to the server. Client No should be registered for the client identification

Name:

Manager can make client name for efficient system operation Client name will be better to make including location information because client can be existed in the internet with public IP. For example, 'Monitoring room in the Tower palace' or 'Sales team in the New York branch'

Client IP:

Client IP means that computer IP installed SmarTLC as a client. This IP should be public IP. If Server IP is same as client IP, click the 'Setting' button. The current local IP will be filled out.

* Client IP should be public IP because if it is private IP or generated by DHCP server, the Server can not have correct information of client.

2.4 Menus

Menus have On Command, Off Command, Request Relay On/Off Status, Request Relay Fail Status, Properties, Request Relay Status, and Find Device in Graphic View, Delete Device menu

ON Command	
OFF Command	

Properties

Request Relay Status

Find Device In Graphic View

New Device

۲

Delete Device

ON Command	
OFF Command	
Request Relay On/Off Status	
Request Relay Fail Status	
Properties	
Find Device In Graphic View	
New Device	Þ
Delete Device	

ON/OFF Command

Turn On/Off the light

Request Relay On/Off Status

Request the current relay' s on/off status

Request Relay Fail Status

Request the current relay's failed status

Properties

Displays the properties of the Relay Panel, Relay, and Switch located bellow the Panel

Relay Panel Properties:

Displays the Relay Panel Properties.

RE	LAY PANEL	Prop	erties								×
Г	SYSTEM	GE L	iahtina [evice 1				•			
	LAP	REL	AY PANI	EL 1-1				-		Default	
	RCC48 Funct	ions -							CE ON/OFF SWITCH		
				D	Default D						
				EL LAZ	: II (F	nno is deiau	() ()) ()			Default Default RR9 S F Constant of the second seco	
		If L Properties If L Properties If L State If L State If L Properties If L Properties If L State If L Properties If L State If L Properties If L Properties									
SYSTEM IDE Lappring Device 1 LAP RELAY PANEL 1-1 ■ PCC48 Functions ■ Flick Warn time delay (5 minutes is default) RR9 Flick Warn time delay (00:00 means individual relay time delay) 00:00 Pute relay pute time (5 seconds is default vaule) 5 Automatic relay failure reporting (Enable/Disable) Enable Automatic relay State reporting (Enable/Disable) Enable Manual override capability for Shed' switchs (Enable/Disable) Enable One minute (#Second flick warn' (Enable/Disable) Disable Time Delay Schedules											
				Automatic re	Image: Constraint of the second state of the second sta						
				Automatic r	elay State re	porting (Enab	le/Disable)			Default	
			Manu	al override c	apability for "	Shed' switchs	: (Enable/Disa	able)		Enable	it
				One minute j	©Second flic	ck warn' (Enal	ble/Disable)			Disable	•
Flick Warn time delay (5 minutes is default vaule) 5 Cleaning crew switch time delay (00:00 means individual relay time delay) 00:00 Pulse relay pulse time (5 seconds is default vaule) 5 Automatic relay failure reporting (Enable/Disable) Enable ▼ Automatic relay State reporting (Enable/Disable) Enable ▼ Manual override capability for 'Shed' switchs (Enable/Disable) Enable ▼ Manual override capability for 'Shed' switchs (Enable/Disable) Enable ▼ One minute (@Second flick warn' (Enable/Disable) Disable ▼ Time Delay Schedules Time Delay Schedules Latter ▼ SUN MON TUE WED THU FRI SAT HOLIDAY A B C D D											
	Time Delay 5	cnedu	es	LION	7.15	1.150		501	017		
	Latter	v 5	UN	MUN	TUE	WED	THU	FRI	SAT	HULIDAY	
	B										
	С										
	SYSTEM GE Lighting Device 1 LAP RELAY PANEL 1-1 Default RCC48 Functions Flick Warn time delay (5 minutes is default) FR9 Image: Comparison of the c										
	·										
								FOF	ICE ON/OFF	SWITCH	Close

Relay Properties:

Displays the system and LAP which the Relay belongs and setup the detailed options of Device Name, LAP Schedule, Schedule Override, Shed, Flick Warn, Cleaning, Delay, Telephone Initiated Override, Auditable Relay, Pulse Output, N/C N/O, Time Delay, Watt Loads.

Flick Warn Cleaning Delay Enabled Enabled Enabled Enabled Enabled Enabl	YSTEM	GE Lighting De	vice 1	_	Schedu	ule Override Begin	Friday Janu	ary 07, 200 👻	
Flick Warn Cleaning Delay • Enabled • Enabled	LAP	RELAY PANEL 1-1			Scheo	dule Override end	Friday , Janu	ary 07, 200 👻	
Enabled Enabled	AP Sched	ule Schedule	Override Shed Flic	k Wam Cleaning Delay	Telephone	Initiated Auditable Re	lay Pulse Output	N/C,N/O Tim	e Dela Wa
 Enabled 	-LAP	 None 	💌 Enabled 💌	💌 Enabled 💌 Enabled	 Enabled 	 Enabled 	💌 Enabled 🔍	N/C 0:0	0
 Enabled - Enabled - 	lone	▼ None	🔻 Enabled 💌	▼ Enabled ▼ Enabled	 Enabled 	▼ Enabled	· ·	✓ 0:0	0
 Enabled • Enabled • 	lone	 None 	💌 Enabled 💌	🔻 Enabled 💌 Enabled	▼ Enabled	▼ Enabled	• •	v ▼ 0:0	0
 Enabled - Enabled - 	lone	 None 	💌 Enabled 💌	▼ Enabled ▼ Enabled	 Enabled 	 Enabled 	• •	• 0:0	0
 Enabled - Enabled - 	lone	▼ None	🕶 Enabled 💌	💌 Enabled 💌 Enabled	▼ Enabled	 Enabled 		• • 0:0	0
 Enabled 	lone	▼ None	🕶 Enabled 💌	💌 Enabled 💌 Enabled	▼ Enabled	▼ Enabled		v ▼ 0:0	0
 Enabled Enabled 	lone	 None 	💌 Enabled 💌	▼ Enabled ▼ Enabled	 Enabled 	 Enabled 	а н на на	• 0:0	0
 Enabled < Enabled Enabled Enabled Enabled Enabled Enabled Enabled 	lone	 None 	💌 Enabled 💌	▼ Enabled ▼ Enabled	▼ Enabled	▼ Enabled		 ✓ 0:0 	0
 Enabled < Enabled Enabled Enabled Enabled Enabled 	lone	 None 	🖛 Enabled 💌	▼ Enabled ▼ Enabled	 Enabled 	 Enabled 	·• ·•	• • 0:0	0
 Enabled Enabled Enabled Enabled 	lone	 None 	💌 Enabled 💌	🔻 Enabled 🔻 Enabled	▼ Enabled	 Enabled 	• •	 ✓ 0:0 	0
 Enabled Enabled 	lone	 None 	🝷 Enabled 👻	▼ Enabled ▼ Enabled	 Enabled 	▼ Enabled	• •	· ▼ 0:0	0
	lone	 None 	💌 Enabled 💌	▼ Enabled ▼ Enabled	▼ Enabled	 Enabled 	• •	✓ 0:0	0
Available	Relays	Include	d Relays						
-----------------------	----------------	------------------------	---------------						
evice Name ⊽ Location	Device Code	Device Name 🗸 Location	Device Code						
ELAY 1-1-2	500-1-1-2-0-0	RELAY 1-1-3	500-1-1-3-0-0						
ELAY 1-1-7	500-1-1-7-0-0	RELAY 1-1-4	500-1-1-4-0-0						
ELAY 1-1-8	500-1-1-8-0-0	RELAY 1-1-5	500-1-1-5-0-0						
ELAY 1-1-9	500-1-1-9-0-0	RELAY 1-1-6	500-1-1-6-0-0						
ELAY 1-1-10	500-1-1-10-0-0								
ELAY 1-1-11	500-1-1-11-0-0								
ELAY 1-1-12	500-1-1-12-0-0	~							

Click the Common button, if the Common Relay should be registered.

Switch Properties:

Select the switch to add the panel in the Switch list of each Panel

All the relays are listed up in the Available Relays list. Select the relays and click the move button, then the selected relays move to the Included Relays list.

Finally the selected relays are added to the selected switch.

Switch Properties (SWITCH(PMS) 2-2-1	I)					×
SYSTEM / LAP / SWITCH						
GE Lighting Device 2	Availa	able Relays				
RELAY PANEL 2-2	RELAY PANEL 2-2		•		Included Relays	
Device Name 🔻 Switch Type	Device Name	∇ Location		Device Name	∇ Location	
SWITCH(PMS) 2-2-1 Master 💌	RELAY 2-2-1	1 Building-1 Floor		RELAY 2-2-3	1 Building-1 Floor	
SWITCH(PMS) 2-2-2 Master 🔻	RELAY 2-2-2	1 Building-1 Floor		RELAY 2-2-4	1 Building-1 Floor	
			>>			
			<<			
1				1		
						Close

Request Relay Status

Select the relay in the device view and click the right mouse button. The Request Relay Status menu shows up.

Relay Status dialog is like bellows.

Relay	RELAY 1-1-1	Pearst Durstime for this relay
Status	OFF(OFF)	
LAP Schedule	None	Reset On/Off Cycles for this relay
Relay Mode	Override	Clear Relay Failure for this LAP
Action Initiator	Network Event	Leave Relays in scheduled ON mode for this relay
Action Time	THU 21:18	Leave Relays in scheduled OFF mode for this relay
Time Delay	0:0 - Disabled	Clear Shed Mode for this relay
Total Runtime	60:24	

Find Device in Graphic View

SmarTLC manager needs to know the specific device location in the blue print of building. It is very difficult to find the location with only device name and printed blue print.

'Find Device in Graphic View' menu provides the efficient function for manager can find the device in the graphic view with little time.



Delete Device

Delete the registered device.

3. Drawing Management

3.1 Drawing Edit

SmarTLC provides excellent graphic editing solution. Graphic editing function provides 'Line', 'Rectangle', 'Circle', 'Ellipse', 'Triangle', 'Polygon', 'Arc', 'Button', 'Image', 'Animation(GIF)' objects linking devices. The graphic objects can be defined particular properties.

3.1.1 Object Toolbar

Object Toolbar shows up when click the drawing mode button



Icons	Function
/	Drawing Line object.
	Drawing Rectangle object
	Drawing Circle object
	Drawing Ellipse object
$\boldsymbol{\bigtriangleup}$	Drawing Triangle object
	Drawing Polygon object
	Drawing Arc object
	Drawing Button object
	Drawing Image object

Drawing Animation(GIF) object

3.1.2 Drawing

Select object button and start drawing on the graphinc window

Line, Triangle, Rectangle, Circle, Ellipse object drawing

Line, Triangle, Rectangle, Circle, Ellipse object displayed as a same drawing process



Polygon object drawing

Polygon object has start point and end point.

Select Polygon button and mouse click at the any point of the graphic window.



Mouse click the every point for the desirable shape.



<Polygon 2>

<Polygon 3>

When the desirable shped is made click the mouse right button. The polygon is completed



<Polygon 4>

Arc object drawing

With various size Arc object can be made. Select the Arc button and mouse click at the any point of the graphic window.

When arc is displayed, change the rectangle size.





There are two yellow small rectangle in the both side of arc. Click the this point and change the size of arc



<Arc 2>

Button object drawing

Select the Arc button and mouse click at the any point of the graphic window.



After making the button object, there is a yellow small rectangle on the left side of button. Click the yellow point and move with mouse then the 3D effect is changing



Image object drawing

Icons, Bitmap, Jpeg files can be registered to the Image object.

Select the Image button and mouse click at the any point of the graphic window then the object properties dialog shows up.

Object Properties		K
Event Properties Default Properties A-PF(LAP Communic OFF(OFF) ON(ON)	Normal Size View & Command Image Properties Image Filename DFF.ICO Image Filename Image Filename Ima	
New Event Delete Event	Apply Close	

Click the 'Find' button and select an image to display.



Object Properties	
Event Properties Default Properties A-PF(LAP Communic OFF(OFF) ON(ON)	Normal Size View & Command Image Properties Image Filename Locate.ico Image Filename None Find Transparent Blink Hiding Hiding Object
New Event Delete Event	Apply Close

The selected image can be viewed on the object properties dialog.

The selected image displayed on the graphic window and the object size is changeable.



Animation object drawing

Animation object support animation gif file.

Select the Animation button and mouse click at the any point of the graphic window then the object properties dialog shows up.



Object Properties	
Event Properties Default Properties	Normal Size View & Command Animation Properties Animation GIF None Find Transparent Blink Hiding Object Speed Stop
New Event Delete Event	Apply Close

Open					? 🔀
Look in:	🗀 animate		•	⊨ 🗈 💣 🎟-	
My Recent	sample.GIF				
My Documents					
My Computer					
My Network	File name:			-	Open
Places	Files of type:	Animate Files (gif)		-	Cancel

Click the 'Find' button and select an animation gif file to display.

The selected animation gif file can be viewed on the object properties dialog. The animation object is not activated by default setting. This object should be linked with the device and setup property.

Object Properties		\mathbf{X}
Event Properties Default Properties	Normal Size View & Command Animation Properties Animation GIF sample.GIF None Find Transparent Blink Hiding Object Speed Stop V	€ €
New Event Delete Event		Apply Close

3.1.3 Link Object to Device

After drawing and editting the object, devices should be linked to. All the events of device can be applied on the graphic window after linking to the device. Select the device on the device view and drag and drop it on to the object to link.

	- *
🖃 🛄 Device View	~
📄 🌄 GE Lighting Device 1	
🚊 🌄 RELAY PANEL 1-1	
RELAY 1-1-1	
🛛 🧖 RĘLAY 1-1-10	
🔤 🧟 RELAY 1-1-12	_
RELAY PANEL 1-2	_
🖬 🧑 GE Liaþtina Device 2	×
Device View Location View	
RELAY 1-1-1	

3.1.4 Align Toolbar

Align Toolbar displayed when click the drawing mode button.



Align Toolbar aligns objects on the basis of selected object. The buttons' function is as follows.

Icons	Function
5	Set the object to the front
P	Set the object to the back
	Align the objects to the left side
8	Align the objects to the center side
	Align the objects to the right side
	Align the objects to the top
-00-	Align the objects to the middle
	Align the objects to the bottom

Align Toolbar functions are same as submenu of object.

3.1.5 Arrange Toolbar

Arrange Toolbar displayed when click the drawing mode button.



Arrange Toolbar arranges objects on the basis of selected object. The buttons' function is as follows.

Icons	Function
	Arrange all the objects as same width
Ħ	Arrange all the objects as same height
	Arrange all the objects as same height and width
[++[++[Arrange all the objects as same wide space
┣━┫	Arrange all the objects as same long space

3.2 Graphic Edit Menu

SmarTLC provides excellent graphic edit functions and also each object has its own properties. Objects react to the particular event and move other drawing window through objects property setting

3.2.1 Graphic menu

Select object and click mouse right button the graphic menu shows up.

Undo	Ctrl+Z
Redo	Ctrl+Y
Rotation Mode	Ctrl+R
Properties	Enter
Group	Ctrl+G
UnGroup	Ctrl+U
Cut	Ctrl+X
Сору	Ctrl+C
Paste	Ctrl+V
Delete	DEL
Hold	Ctrl+H
UnHold	Ctrl+F
Align	+
Same Size	+
Unlink	

Graphic menu functions provide indiviual property setting and edit options of objects on the graphic window.

Graphic menu composes setting menu and edit menu.

Rotation Mode / Sizing Mode

< 'Sizing Mode'>



'Rotation Mode' can be changed to the 'Sizing Mode' by selecting menu or clicking the mode toolbar. Object can be rotated its shape in the 'Rotation Mode' and changed its size in the 'Sizing Mode'.

< 'Rotation Mode' >

Properties

Object has detailed properties and can be reacting differently by the properties setup. Basically, object properties are set as same options except animation object. Following object properties dialog shows up when select the properties menu.

Object Properties		\mathbf{X}
Event Properties	Normal Size Text View & Command	
Default Properties	Line	
	Color Width	
	Fill	
	Color Transparent	
	Rotation	
	Speed None 💌 🗖 Blink	
	Hiding	
	Hiding Object	
New Event Delete Event	Apply Close	

Normal Properties

Normal Properties set outline color of object, internal color of object, rotation option and hide option.

Line:

Line sets the out line color of object. When click the color section, the color selection window shows up.

None	
	1
Other	

Color	? 🔀
Basic colors:	
	•
<u>C</u> ustom colors:	
	Hue: 160 Bed: 128
	<u>Sat:</u> 0 <u>Green:</u> 128
Define Custom Colors >>	Color Solid Lum: 120 Blue: 128
OK Cancel	Add to Custom Colors

If there is no color to select, click the other button. User can make customized color and use it.

Width:

Line width can be selected.

Click the width section then the following window pops up.

			6
_			
_	_		_
Ξ	_	_	-
	-		

Fill:

Set the inner color of object. Fill option has gradient option to fill object color with mixed two colors. It gives a way to express the object's status more effective. The way of selection is same as line color selection



The gradient effect setting as follows.

Fill Effe	ct		
Gradie Color	nt 1 Horizental Diagonal Up From Corner	Color2 C Vertical C Diagonal Down C From Center	Cancel

Select two colors and the way of color selection is same as what explained before. The gradient has 6 effects modes and four variable shapes.

Transparent:

Check the transparent option when the object on the back should be shown with the object on the top together.

The following picture explains the transparent effect.



<Transparent>

<Opaque>

Rotation :

Set the rotate option of the object when particular event is generated. There are rotation speed and blink option.



The speed option has 1~10. 1 is the lowest rotation option and 10 is the fastest rotation option.

Hide:

Hide the object when particular event is generated.

□ Size Properties

Size Properties set the width, height, rotation ratio and hold position option of object.

Object Properties		\times
Event Properties Default Properties	Normal Size Text View & Command Position Width 78 + Height 60 + Rotation 0 +	
	Origin Width Height Height Set Origin	
New Event Delete Event	Apply Close	

Position:

Set the width, height, and rotation ratio of object on the drawing. The rotation ratio is from 0 to 359.

Hold position:

Hold position prevent the changing position by mistake of mouse movement.

□ Text Properties

Text can be inserted inside of the object and Text properties dialog sets the font, detailed text color, size, type and string to be inserted.

Object Properties	
Event Properties Default Properties	Normal Size Text View & Command Font Properties Font Microsoft Sans Seri Size String Type Regular Color Image: Color
	Arrange Horz. Center Vert. Center
New Event Delete Event	Apply Clos

Font:

Select the text font to be displayed

Size:

Select the text color

Type:

Select the text type

String:

The content to be shown inside of the object.

□ View & Command Properties

User can set the view option if one drawing needs to shift to another drawing when object clicked. User can generate the particular command event by double click the object. Command option provides this function.

Object Properties	
Event Properties Default Properties	Normal Size Text View & Command Moving (When Push Left Mouse Button)
New Event Delete Event	Apply Close

None:

Do not set View & Command option

□ Animation Properties

Animation properties dialog provides the option of the animation speed.

Object Properties		X
Event Properties Default Properties	Normal Size View & Command Animation Properties Animation GIF sample.GIF None Find Transparent Blink Hiding Object Speed Stop	*
New Event Delete Event		Apply Close

Speed:

Speed can be selected from stop to 9. When Stop option is selected, the animation option does not animate and 9 is the fastest animation speed.

Event Properties

Event Properties has 'New Event', 'Delete Event' menus.

'New Event' menu adds variable event generated from the device to make the object on the drawing display variable status.

If the events are not registered, the event properties options are not applied

Event Properties	
Default Properties	
A-PF(LAP Communication Fail)	
OFF(OFF)	
ON(ON)	

New Event:

The Event list window shows up when click the New Event button. Select the event to register.

S	elect Event		×
	Event Code 🛛 🗸	Description	
	A-CM	Communication Fail	_
	A-BE	Relay Fail	
	N-OFF	Off-line	
	N-ON	On-line	
	ONOFF	ON/OFF	
	RRDC1	RRDC1 FAIL	
	RRDC2	RRDC2 FAIL	
	RRDC3	RRDC3 FAIL	
	RRDC4	RRDC4 FAIL	
			_
		OK. Cancel	

Group / Ungroup



Group menu include several objects and manage it as one object. Select several objects to make one object and click the Group menu.

Cut

Cut menu delete the object but the cut object is copied to the memory. The cut object can be restored by selecting the 'Paste' menu Copy Copy the object to the memory The selected object stays on the drawing and the copied one stored in the memory. Paste Duplicate the object with storing the selected object properties by 'cut' or 'copy' menu. This menu is convenient for duplicating the many objects with same properties. Delete Delete the objects without storing the memory. The deleted objects are not restored. Hold Hold menu is for preventing the location changing by mistake of mouse movement. Unhold Unhold menu is for editing the held object. When unhold menu clicked the held object can be moved to other location. Align

Align menus are same as Align Toolbar functions.

	Front Back
	Left
	Center
	Right
	Тор
	Center
_	Bottom

Same Size

Same Size menus are same as Arrange Toolbar functions.

Width Height Both	
Space Evenly(Horz) Space Evenly(Vert)	

Unlink

Unlink menu disconnect between device and object. Unlinked object can be linked to another device.

4. Event Management

4.1 Event Window

'Event Window' shows every event generated from the devices registered in SmarTLC. This composes 'Event', 'Alarm', 'Alarm Resolution' tabs.

4.1.1 Event

Event Tab

Event Tab displays every events generated from the devices in real time These events are all checked 'Display Event' option in the Event Properties dialog.

ON Command OFF Command
Properties Request Relay Status
Find Device In Graphic View
Event Properties Font
Font

ON Command
OFF Command
Request Relay On/Off Status
Request Relay Fail Status
Properties
Find Device In Graphic View
Event Properties
Font

When right mous button click, the menu is dinamically changed depending on the generated event type.

ON Command, OFF Command, Properties, Request Relay Status, Find device in Graphic View menus are same as in the device view mouse right button click menus. The SmarTLC manager can control divices in the Event tab.

Alarm Tab

All the unresolved alarms are displayed in the Alarm Tab. It provides sub menus as follows.

ON Command OFF Command
Properties Request Relay Status
Alarm Resolution
Find Device In Graphic View
Event Properties Font

Resolve Alarm :

Manager writes a detailed resolution history in the dialog. All the generated alarms should be resolved and made resolved history.

This history can provide more efficient device management way.

Manager can leave the resolved log by clicking the Resolve Alarm and the logs are displayed in the Alarm Resolution tab.

The same log can be applied to the multi alarms.

Resolution	X
Resolution Report	
	Canad
	Lancel

Alarm Resolution

All the resolved alarms with the resolved logs are displayed in the Alarm Resolution Tab.

Event Alarm	Alarm Resolution							
Time	∇ Device Name	Location	Status	Description	Device Code	Resolved Time	Resolver	Resolution Report
2005-01-07 1	4:40:23 RELAY 1-1-10		A-RF(Relay Fail)		500-1-1-10-0-0	2005-01-07 15:35:5	s	reinstall device
2005-01-07 1	4:40:23 RELAY 1-1-12		A-RF(Relay Fail)		500-1-1-12-0-0	2005-01-07 15:37:0		change relay
2005-01-07 1	4:40:23 RELAY 1-1-11		A-RF(Relay Fail)		500-1-1-11-0-0	2005-01-07 15:37:13	s	change lancard
1								

CHAPTER 4. User Notes

This chapter explains the notes for user to operate SmarTLC properly and efficiently.

1. SmarTLC System Composition

1.1 Hardware Composition

Item	Spec
CPU	INTEL P-4 2.0Ghz
MEMORY	512Mbytes
HDD	200Mb
VIDEO	1280 * 1024 16bit Color
MONITOR	1280 * 1024
INPUT DEVICE	Standard Windows Compatible Mouse

1.2 Software Composition

Item	Spec			
O/S	Window 2000, Win XP			
Program	IE 6.0			
Program	SmarTLC			