

# LiteTouch Integration Manual

Integrating a LiteTouch system with  
Home Automation components

---

## Systems Integration Manual

---

June 2006



3400 South West Temple  
Salt Lake City, Utah 84115  
Phone: 801.486.8500  
Technical Hot Line: 1-800-527-5527  
Fax: 801.486.8569

---

# Introduction

---

Integrating a LiteTouch Lighting Control System with other automation components is as simple as understanding the four LiteTouch integration methods:

- Contact Closure - Compact, Standard & 5000LC CCUs
- Infrared (IR) - Compact, Standard & 5000LC CCUs
- RS-232 Protocol (9 pin connector) - Compact, Standard & 5000LC CCUs
  
- Internet Protocol (TCP/IP) - 5000LC CCU

These integration methods, when combined with the macro feature of the 5000LC, form the most powerful lighting control system on the market.

## Contact Closure - Compact, Standard & 5000LC CCUs

---

The contact closure method of integration utilizes LiteTouch's High Power Relay (08-2210-01), Low Voltage Relay Module (08-2235-01), Maintained Data Input Module (08-2290-01), Momentary Data Input Module (08-2290-02), or Data Input Station.

- **High Power Relay Module:**

The LiteTouch High Power Relay Module provides 120 volts to third party devices. This is commonly used for integrating motor control into a LiteTouch system. The module has interlock capability, which will not allow two consecutive outputs to be on at the same time, ensuring motor longevity.

- **Low Voltage Relay Module:**

The LiteTouch Low Voltage Relay Module provides contact closure to third party devices. The module can provide voltage up to 32 V DC/AC, or a contact closure when provided a common input from the controlled device.

Examples: Motorized shade interface, thermostat, irrigation system, etc.

- **Maintained Data Input Module:**

The LiteTouch Maintained Data Input Module initiates a programming function when it receives input from a third party device between 15 and 24 volts.

Examples: Motion sensor, door jam, photo cells, security system, etc.

- **Momentary Data Input Module:**

The LiteTouch Momentary Data Input Module initiates a programming function when it receives input from a third party device between 6 and 32 volts.

Examples: Motion sensor, door jam, alarm system, LTZ station, garage door opener, etc.

---

- **Data Input Station:**

The LiteTouch Data Input Station initiates a programming function when it receives input from a third party device between 6 and 32 volts.

Note: The 1st, 2nd, and 3rd inputs are momentary; the 4th, 5th, and 6th inputs are maintained. The Data Input Station will accept all of the inputs that the Maintained and Momentary Data input Modules will accept.

## Infrared (IR) - Compact, Standard & 5000LC CCUs

---

LiteTouch systems can be activated by a third party remote control by simply learning the LiteTouch protocol into a third party remote. Tip - for any easy solution, use a remote control offered by LiteTouch, or simply learn the protocol from one of our remote controls (contact tech support for further instructions).

LiteTouch systems also have the capability to receive IR protocol from an IR emitter attached to the IR receiver on a LiteTouch station (see LiteTouch Product Catalog for details).

Notes:

- All LiteTouch stations utilize the same IR protocols
- The Scenario utilizes the address of FF from our IR library.

## RS-232 Protocol - Compact, Standard & 5000LC CCUs

---

The RS-232 method of integration is highly flexible and can be customized for integration with any third party automation device. RS-232 integration can be used in conjunction with any of the three LiteTouch CCUs and only requires a LiteTouch serial cable and programming information.

- **5000LC CCU:**

Connecting to and integrating with a 5000LC Central Control Unit

The third party device connects to the 5000LC CCU with a LiteTouch serial cable. The pins used are 2, 3, and 5 in a straight through configuration.

- Pin 2 = Transmit Data
- Pin 3 = Receive Data
- Pin 5 = Signal Ground

- If the 5000LCCCU is controlling another device via RS-232 protocol then it is necessary to have the third party devices' protocol. When programming, the LiteTouch button in LiteWare will be assigned the function of "User". This allows you to write a user program that will send out the protocol of the device you are controlling.

---

Format: `SendSerialOut(COMX,"yyy\r")`

X = Communication Port

Com1 = Serial 1 on CPU card

Com2 = Serial 2 or Ethernet port on CPU card

Com3 = C2000/Connection card

Com4 = Modem card

yyy = Manufacturers serial string to be sent out of the serial port "X" from above. The string must be EXACTLY as the manufacturer has specified in their supplied protocol including CAPS and SPACES.

\r = Carriage return. This is always used in this format and in the same location.

Example: `SendSerialOut(COM1,"SPA ON \r")`

Term

Note: This example will tell the spa to turn on.

- If the 5000LC CCU is being activated by a third party device, then that device needs to send the LiteTouch system a command in LiteTouch protocol. LiteTouch protocol, entitled the "5000LC Real Time Control Protocol", is available on our LiteTouch support web site (<http://support.litetouch.com>) or from the Technical Support Department.
- Commonly, a third party device would like to receive feedback from the LiteTouch system confirming that an action has happened in the 5000LC system (such as a button press). To enable feedback, a program will need to be written in a Startup Event (see details below).

The Startup Event is programmed from the Parameters screen in LiteWare. This event or program will run at system start-up and additionally each time the system is restored after a power loss.

Format: `SendSerialIn(COMX,"yyy\r")`

X = Communication Port

yyy = Manufacturers serial string to be sent out of the serial port "X" from above. The string must be EXACTLY as the manufacturer has specified in their supplied protocol including CAPS and SPACES.

\r = Carriage return. This is always used in this format and in the same location.

Example: `SendSerialIn(COM1,"I,SB,999,38400\r")`

`SendSerialIn(COM1,"R,SIEVN,7\r")`

Term

Note: This example sets the baud rate on communications port 1 to 38,400 and tells the

---

CCU to send a response out on communication port 1 whenever an action happens within the system.

**All explanations for programming can be found in the LiteWare Help files along with detailed explanations and additional examples.**

▪ **Compact/Standard CCUs:**

Please note that the Standard and Compact CCUs have a different protocol from the 5000LC CCU (see above for details).

▪ To send confirmation to a third party device that an action has happened, such as a button press, two files must be created when programming the system. These files are auto generated when you enable feedback for specified stations in the Parameters view of LiteWare (details located in the LiteWare Help Files).

When feedback has been enabled in a program that has been uploaded to the CCU, the serial cable pin out changes. Pins 2, 3, and 5 are still straight through; however, pins 7 and 8 must be jumped together at the cable's CCU connection point.

▪ If the Compact or Standard CCU is being activated by a third party device, then that device needs to send the LiteTouch system a command in LiteTouch protocol.

**LiteTouch protocol**, entitled the "Compact and Standard Protocol document.", is available on our LiteTouch support web site (<http://support.litetouch.com>) or from the Technical Support Department.

**Notes:**

LiteTouch's default baud rate is 9600. If the third party device would like to communicate at a different baud rate, then they will need to send LiteTouch the command to make the necessary change (details located in the LiteWare Help Files).

## Internet Protocol - 5000LC CCU

---

### Integration through

Internet Protocol allows the 5000LC CCU to be connected to a Local Area Network (LAN), accessed via the web. A public IP address must be assigned and accessed directly from a laptop or computer using LiteWare, CP5000, or the Pocket LT software program.

The Ethernet port is shipped with the static IP address of 192.168.0.3. The Ethernet port can be configured with the Lantronix Device Installer program and Windows Explorer. Lantronix Device Installer program is located on the LiteTouch website in the Log-in Section.

---

Notes:

- After the initial Ethernet set-up process (above), the programming and protocol follows the same instructions as RS-232 for the 5000LC CCU (see previous section for details).
- Any additional questions about general concepts or specific application may be discussed with our trained integration specialists within the Technical Support Department.
- LiteTouch suggests that the use of and the integration with the Ethernet port be setup by a Network Administrator or someone who is familiar with TCP/IP.

## LiteTouch 5000LC Published Macros

---

5000LC Macros are programming "shortcuts" designed to make the job of the LiteTouch system programmer easier.

Below are the definitions of the macros that LiteTouch has posted on their website for you to simply download and use. Download available from the LiteTouch website under the Log-in section.

### **Scene Macros**

#### **2-Scene Dimming:**

The 2-Scene Dimming Macro will toggle between two scenes, then turn off the load group. If the button is pressed and held while one of the scenes is active, it will raise/lower the levels of the loads in the active scene.

#### **3-Scene Cycle:**

The 3-Scene Cycle Macro toggles between three scenes each time the button is pressed and released. If the button is held, then the active scene is turned off.

#### **3-Scene Dimming:**

The 3-Scene Dimming Macro will toggle between three scenes then turn off. If the button is pressed and held while one of the scenes is active, it will raise/lower the levels of the loads in the active scene.

#### **Special 3-Step Scene:**

The Special 3-Step Scene macro will go to high levels with the first press and blink the LED 3 times. The 2nd press blinks the LED twice and the third press blinks the LED once.

---

**Scene any-on Macro:**

The Scene any-on Macro is a special scene switch to enable the LED to stay on if any of the loads that are part of a scene group are on. You must drag and drop the load group onto the switch.

**Scene Dimmer:**

The Scene Dimmer will act like a scene switch if pressed and released. If the switch is pressed and held, it will act like a dimmer switch and ramp the loads up and down. In order for the LED to function correctly, the lighting load group must be dragged and dropped on the button.

**Scene Dimmer with inverted LED:**

The Scene Dimmer with Inverted LED Macro will act like a scene switch if pressed and released. If the switch is pressed and held, then it will act like a dimmer switch and ramp the loads up and down.

In order for the LED to function correctly, the lighting load group must be dragged and dropped onto the button and the LED update must be [all off].

**Scene Unlock:**

The Scene Unlock Macro is used to unlock the scenes to re-memorize new levels with the press of a switch.

**Scene Lock:**

The Scene Lock Macro is used to lock the scenes after they have been re-memorized to new levels with a one-switch press.

**Scene lock, unlock:**

The Scene lock, unlock Macro is used to lock and unlock the scenes to re-memorize new levels with a one-switch press.

**Pathway 3-group macro:**

The Pathway 3-group macro sets a sequence of load groups to come on one at a time. The default time is three-seconds between each turn on, and five minutes between each turn off.

**Multiple load group; Scene preset toggle:**

The Multiple load group; Scene preset toggle is a Macro for a scene preset with 2 load groups. One group has all the loads and one group has some of the loads. We use a static bit for changing between the 2 load groups to be activated.

**Delayed Master-Off:**

The Delayed Master-Off Macro works just like a master off switch, but does not turn off the assigned loads unless the button is held for a specific amount of time.

---

## **Astronomical Time Macros**

### **Day/Night/OFF Scene Macro:**

From a single button, the Day/Night/Off Scene Macro turns on or off one of two scenes, depending on whether it is day or night outside (If daylight = scene 1, if night = scene 2) . It also allows for scene memorization of the active scene (if scene memorization is unlocked in the system).

### **Rise Set Scene:**

The Rise Set Scene switch will check the time of day and compare it to sunrise. If it is after sunrise but before sunset, it will turn on the daytime scene. If after sunset, it will turn on the night scene.

### **Sunset Timed On:**

The Sunset Timed on Macro will check the time of day and then check to see if it is after sunset. If the statement is true, then it is dark and the loads will turn on and stay on like a timed on switch.

## **Timed Macros**

### **Timed Flash:**

The Timed Flash Macro will cause the lights to turn on for one-second and then off for one-second. The number of cycles will be determined by the duration number entered, which is divided in half to create one full on / off cycle. For example, 120 seconds will turn on or off the loads for 1 minute.

### **Bath Light with Timed Exhaust:**

The Bath Light with Timed Exhaust Macro toggles a bathroom light on and off. After turning the light off, it will leave an exhaust fan running for a specified time, then turn the fan off.

If the button is pressed again before the bath fan times out, the time out counter is stopped and the light and fan are toggled on.

## **Motor Control Macros**

### **Special Somfy IGC control:**

The Special Somfy IGC Control Macro will turn on the single relay for one second with a single press and release. A press and hold will turn on both relays for one second.

### **Silent Gliss Motion control:**

The Silent Gliss Motion Control Macro is a one-button Silent Gliss drapery control based on the switch type "Motion Control".

---

**Delayed Shade Motion Control:**

The Delayed Shade Motion Control Macro is used for one-shade control based on the switch type "Motion Control" to delay a second set of motors.

**Motion Control for Somfy DC5 controller:**

The Motion Control for Somfy DC5 controller switch will act like a motion control switch with momentary contact closures to the DC-5 interface.

**Fan Control Macros****Fan Speed Control LED Blink:**

The Fan Speed Control LED Blink switch will control a three-speed ceiling fan connected to a Fan Control Module. The first press will set the fan at the high speed and blink the switch LED three times.

The next press will change the speed to medium, and blink the LED twice. The third press changes the speed to low and blinks the LED once. A fourth press will set the speed to 0 and turn the LED off. There needs to be 3 load groups with the high level set to 90, the medium set to 60, and the low at 30.

**Fan Speed Control Module Macro L-M-H:**

The Fan Speed Control Macro is for three-speed control of a fan wired to the Fan Speed Control Module. The macro adjusts the fan from Low to Medium to High and then turns off. A hold will turn off the Fan. This will also blink the LED three times when at high, twice at medium, once for low.

**Fan High Low Toggle:**

The Fan High Low Macro toggles between two scenes. Enter the switch being programmed as the first parameter; enter the High speed fan group as the second parameter; and enter the Low speed fan group as the third parameter. The program will toggle between the HIGH load group and the LOW load group.

Then, the macro will step to the next level if pressed again before three seconds. If pressed after three seconds, it will turn off the loads, and turn off the LED.

**Product Support Macros****6-Channel Close:**

The 6-Channel Close Macro is used for two-button shade control via a 6-Channel Relay Module. It is used in conjunction with the Open macro (assigned to a complementary button).

The 6-Channel Close Macro is typically used with two way motors. Before setting the motor in one direction, it stops the opposite direction first. The macro will also time out if not stopped manually.

---

### **6-Channel Open:**

The 6-Channel Open Macro is used for two-button shade control via a 6-Channel Relay Module. It is used in conjunction with the Close macro (assigned to a complementary button).

The 6-Channel Open Macro is typically used with two way motors. Before setting the motor in one direction, it stops the opposite direction first. The macro will also time out if not stopped manually.

### **6-Channel Motion Control:**

The 6-Channel Motion Control Macro is used for one-button shade control via a 6-Channel Relay Module. The macro should be used with an Interlock Relay module or a relay module with the interlock dipswitches in the "on" position.

The 6-Channel Motion Control Macro is typically used with two way motors. Before setting the motor in one direction, it stops the opposite direction first. The macro will also time out if not stopped manually.

### **Startup Baud Rate Change:**

The Startup Baud Rate Change Macro is used as a startup event to change a COM port's baud rate. If you do not change the values, by default, the macro will set COM2 to a speed of 38400 baud.

## **DayLight Harvesting Keypad Macros**

**DayLight Harvesting On/Off:** The DayLight Harvesting On/Off Macro is 1 of 4 macros used to control the DayLight Harvesting functionality of the 5000LC. This required macro is the On/Off control for the DayLight Harvesting functionality and should be assigned to a physical switch. When the button that this macro is assigned to is toggled on, the 5000LC will adjust lighting levels for programmed loads relevant to the amount of natural light received at a light sensor. Controlled light levels increase as less natural light is detected by the sensor and decrease as more natural light is detected. When DayLight Harvesting On/Off is toggled off, the controlled loads are not automatically adjusted.

**DayLight Harvesting Functionality:** The DayLight Harvesting Functionality Macro is 1 of 4 macros that control the DayLight Harvesting functionality of the 5000LC. This required macro is imported onto each one of the 8 inputs of the DayLight Harvesting Keypad. The analog signal from the light sensor will "push" these buttons, varying the controlled loads depending on the amount of natural light detected.

**DayLight Harvesting Start Timer:** The DayLight Harvesting Start Timer macro is 1 of 4 macros that control the DayLight Harvesting functionality of the 5000LC. This optional macro is imported onto a timer that is configured to fire at the time of day that you want the DayLight Harvesting keypad to begin varying its controlled loads.

---

Though the DayLight Harvesting On/Off macro is still required, utilizing the functionality of this macro will decrease the user's dependence on it.

**DayLight Harvesting Stop Timer:** The DayLight Harvesting Stop Timer macro is 1 of 4 macros that control the DayLight Harvesting functionality of the 5000LC. This optional macro is imported onto a timer that is configured to fire at the time of day that you want the DayLight Harvesting keypad to stop varying its controlled loads and turn them off. Though the DayLight Harvesting On/Off macro is still required, utilizing the functionality of this macro will decrease the user's dependence on it.

### **LiteTouch Macro Access:**

The LiteTouch Macros can be downloaded from the website at:  
**<http://portal.litetouch.com/Login.aspx>.**

Login using your username & password. Once you are logged in, go to **support/software downloads/5000LC Programming Macros**.

Or, once logged in, you can go directly to the macro page by typing in the following URL into your browser address box:  
**<http://portal.litetouch.com/software/?page=5000LC>.**

If you should need any technical assistance, please call the Technical Support Department at 1-800-527-5527 8am to 5pm MST.