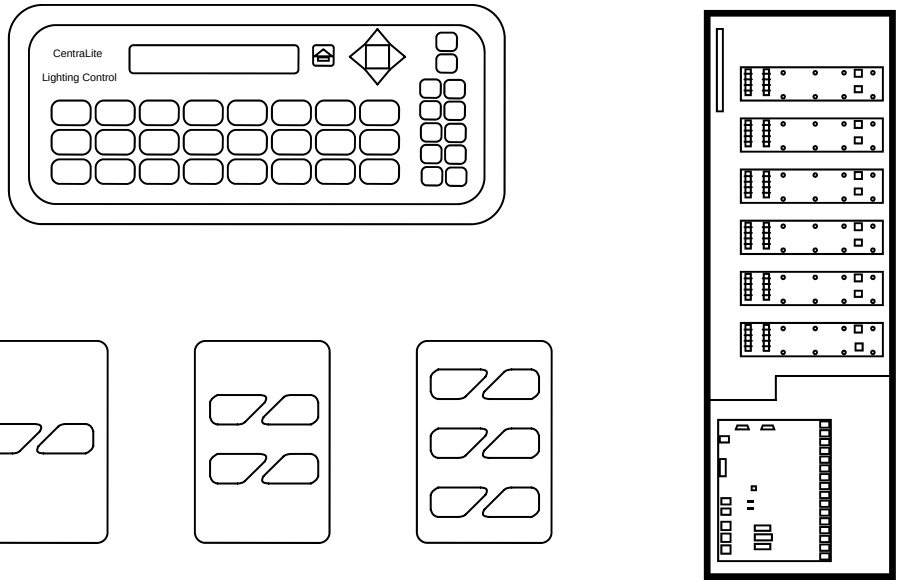
LiteJet™

Installation Guide



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LiteJet™ Specifications and Load Ratings

Types of Acceptable Power:	Single or Three Phase(Optional) Power @ 50 or 60 Hertz
Relay Panel Max. Load:	72 Amps
Relay Module Max. Load:	16 Amps
Individual Relay Max. Load:	8 Amps
Allowable Types of Dimming:	Incandescent, Magnetic Low Voltage, and Suitable Electronic Low Voltage Fixtures
Dimming Method:	Normal Phase Control leading edge dimming.
Note:	Use copper conductors only.
Max. Ambient Temperature:	40 Degrees Celsius
Min. Ambient Temperature:	0 Degrees Celsius

Relay Panel must be mounted upright.

Do not insulate within 6 inches of Relay Panel.

All components must be mounted in dry conditions. Do not expose to rain, high humidity, or other sources of moisture.

DO NOT EXCEED 72 AMPS TOTAL RELAY PANEL LOAD

DO NOT EXCEED 16 AMPS LOAD ON ANY RELAY MODULE

DO NOT EXCEED 8 AMPS LOAD ON ANY INDIVIDUAL RELAY

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The **LiteJet™** is a centralized lighting control system. The **LiteJet™** can control Lighting, Fans, and mechanical low voltage relays.

The **LiteJet™** controls Lights with solid-state **Relays**. The **Relays** are attached to Relay Modules. (**Page 7**) The Relay Modules are enclosed in the top section of the Relay Panel. (**Page 6**)

The **Relays** are controlled by the Master Control Panel(**MCP**). The **MCP** is located at the bottom section of the Relay Panel.(**Page 6**)

The **MCP** receives control signals from **Buttons**. Buttons are located on **Keypads**. The Keypads are placed on the walls where switches would normally go. Keypads are connected to the MCP with CAT5 cables.(**Page 9**)

Buttons can control individual **Lights** or groups of **Lights** in **Scenes**. (**Page 18**)

Scenes are groups of Lights which are preset to turn on to various levels of dimming.(**Page 23**)

The system is programmed either from the Touch Pad Programmer (**TPP**) or a PC using the **LiteJet™** configuration software. Although the **TPP** is not necessary for system operation, it should be placed somewhere in the home. The **TPP** is connected to the **MCP** with CAT5 cable. The system can also be programmed from a PC using the **LiteJet™** software. The system can operate without a **TPP**.

The **LiteJet™** can include optional Fan Speed control boards and Low Voltage Relay boards,

The **LiteJet™** can interface with other control systems and devices through its RS232 and RS485 ports.

The **LiteJet™** is capable of operating in 3-phase power environments when wired for that purpose.

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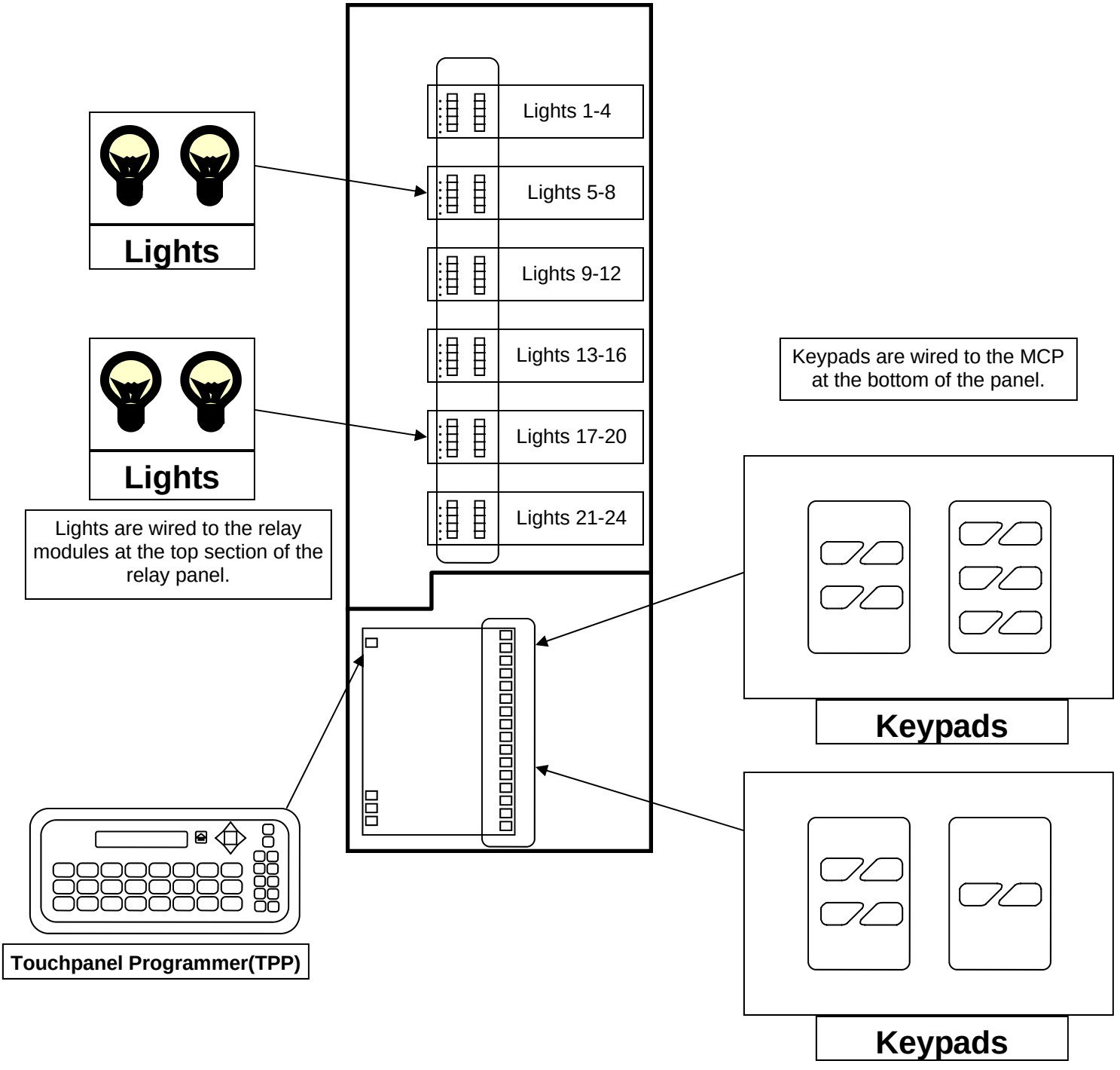

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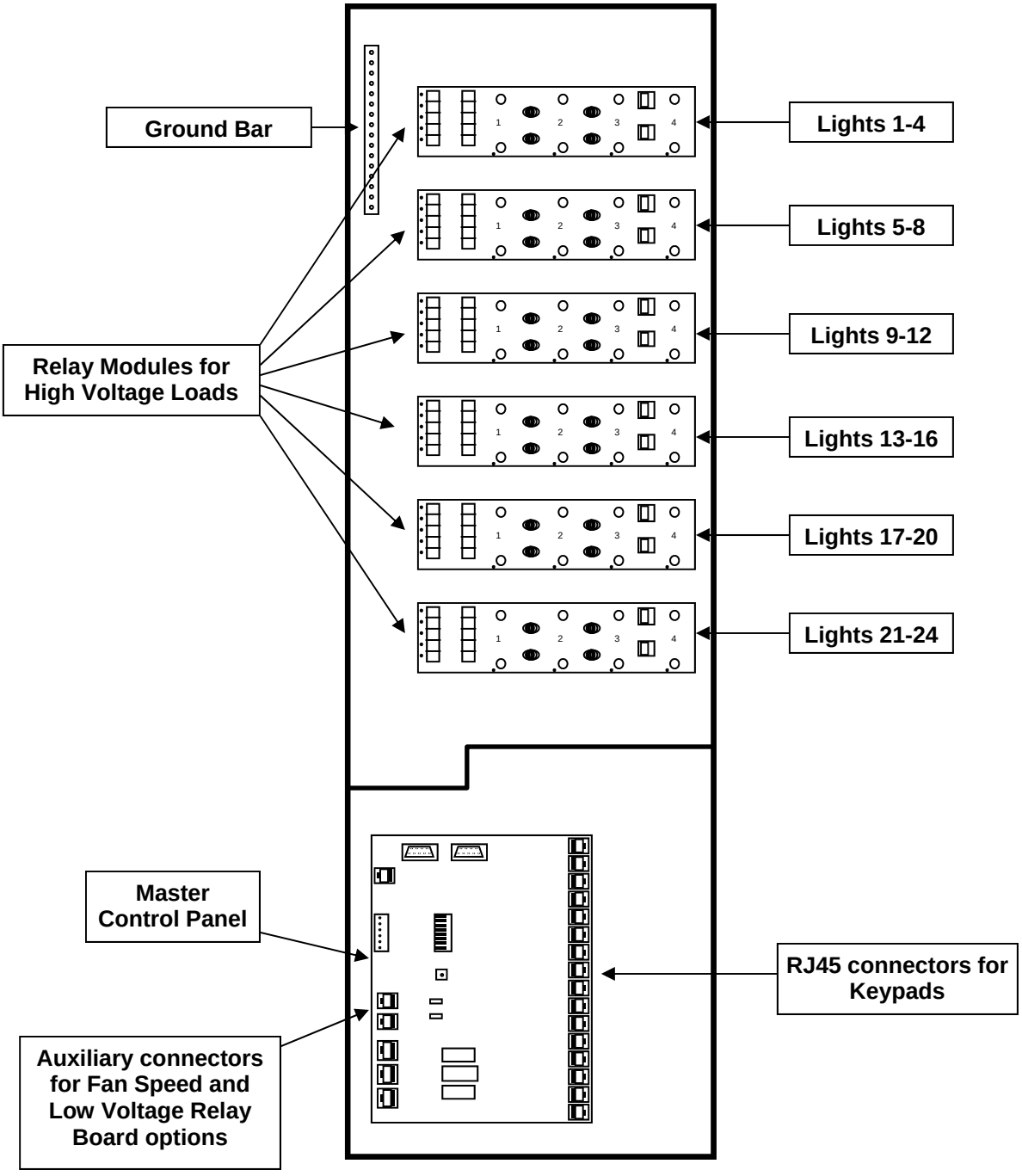
LiteJet™ Relay Panel Layout



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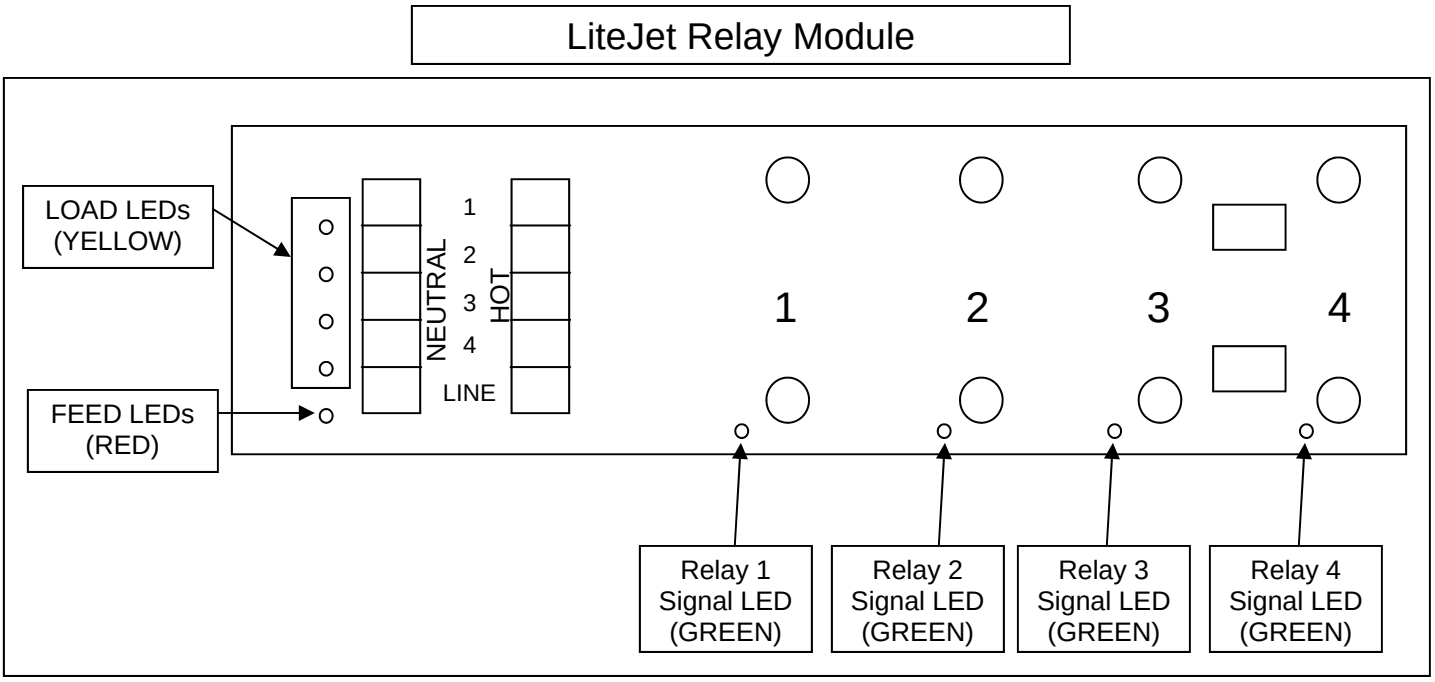

Each LiteJet relay module contains 4 solid-state relays. Each module has status LEDs which indicate information about the low voltage signal to the relays(GREEN), the feed power to the module from the breaker(RED), and the high voltage output of each relay(YELLOW). One look at the relay module yields information that usually requires a voltmeter and test light.

If the **RED** Feed **LED** is lit, this means power from the breaker is feeding the module.

If the **GREEN LED** for a relay is lit, this means that a 5 Volt signal is being sent to the relay from the MCP.

If the **YELLOW LED** is lit, this means the relay is outputting high voltage from the terminal and the light fixture it is connected to should be working.

If the **YELLOW LED** is lit but light fixture is not working, this probably indicates that a bulb is out or the fixture is not wired correctly.

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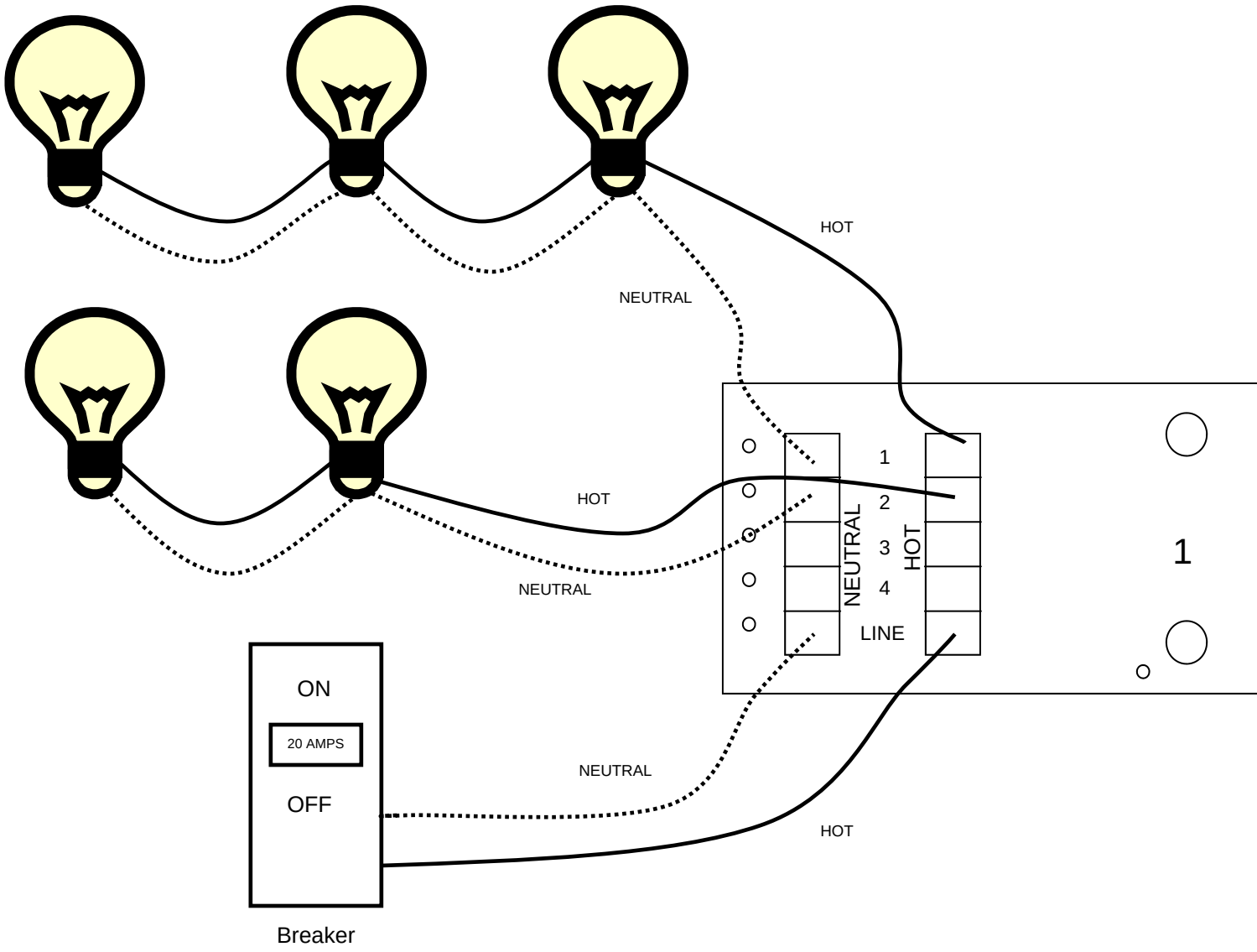

Each Lighting Switch Leg is terminated on a LOAD terminal. Each LOAD HOT wire is terminated on it's corresponding HOT side. Each LOAD NEUTRAL is terminated to it's corresponding NEUTRAL side.

All grounds are terminated from the breakers and the loads on the GROUND BAR.

DO NOT load Relay Panel with more than 72 Amps.

DO NOT control more than 16 AMPS with any one RELAY MODULE.

DO NOT control more than an 8 AMP load from any one RELAY.

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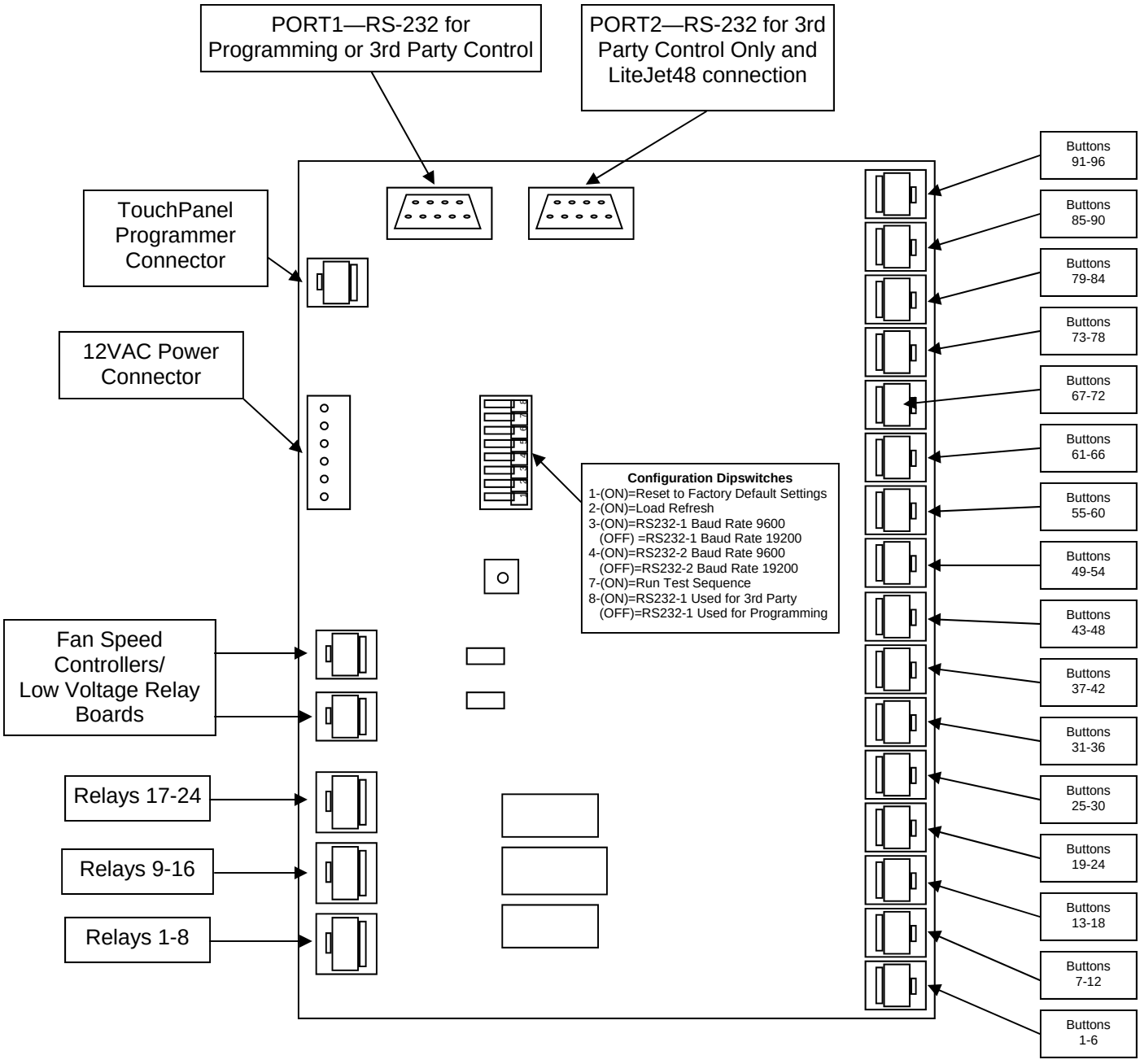
Master Control Panel Description

The LiteJet Master Control Panel(MCP) is shown below. The MCP consists of :
16 RJ45s(8-pin) connectors for wall keypads
2 RS232 ports for Programming and Third Party Control
1 RJ45(8 Pin) for the TouchPanel Programmer
3 RJ45s(10 pin) for connections to the relay modules
2 RJ45s(8 Pin) for optional Fan Speed Controllers and Relay Boards



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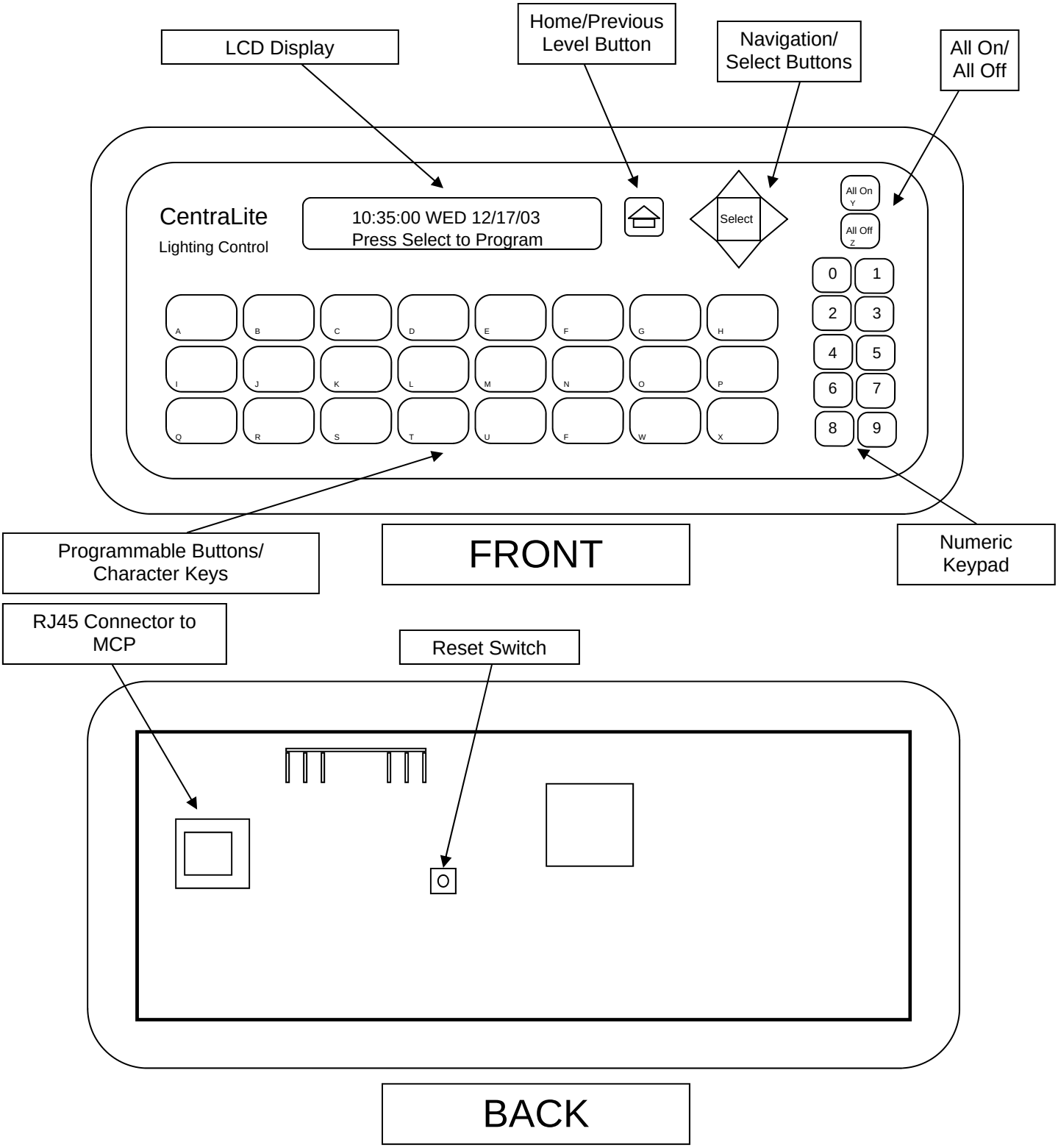
The LiteJet system can be programmed either from the TouchPanel Programmer(TPP) or a PC connected via RS-232. This guide focuses on programming from the TPP.



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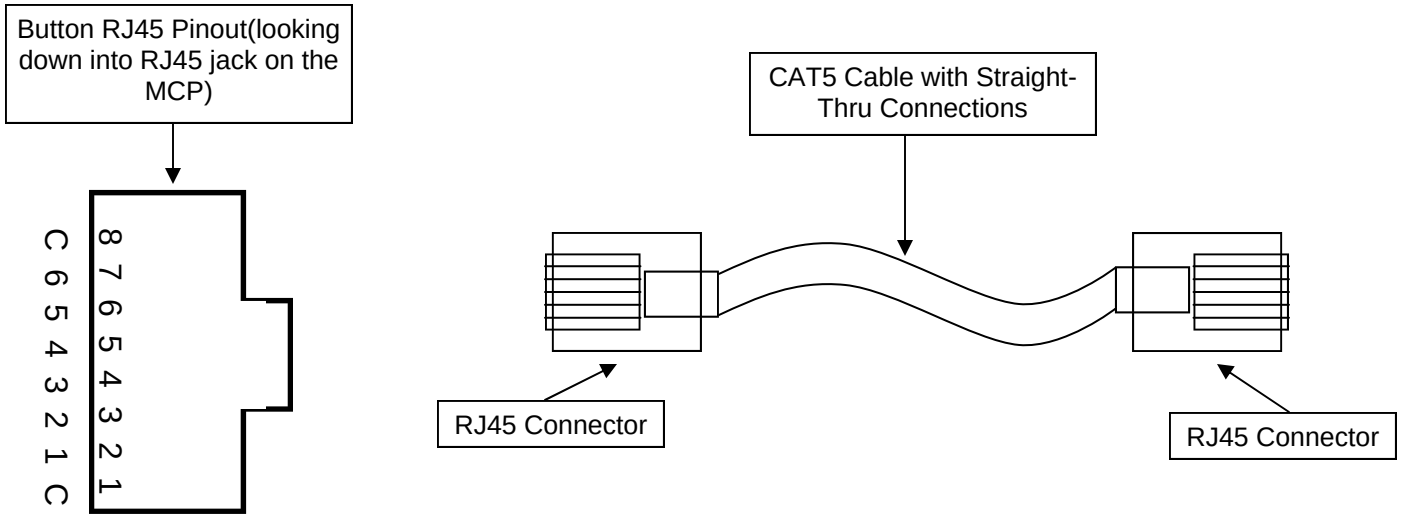


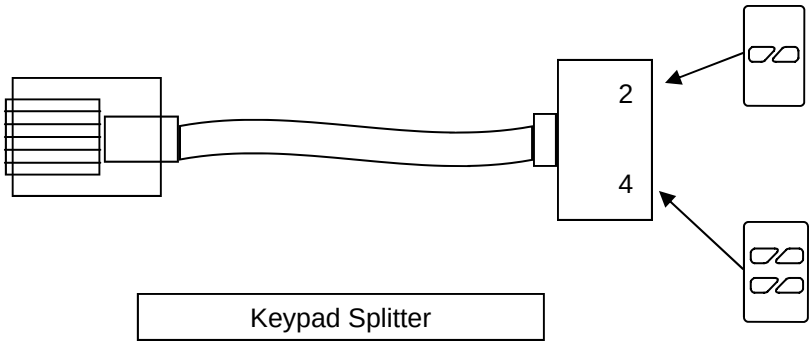
Almost all connections between components of the LiteJet are made with CAT5 cable with 8-pin RJ45 jacks and plugs. These include connections between the keypads and MCP, TouchPanel Programmer and MCP, and Fan Speed Controllers/Relay Boards and MCP.

These CAT5 cables are all made with a Straight-Thru wiring termination. (Pin 1 goes to Pin 1, Pin2 goes to Pin 2, etc.)

It is a good idea to use a cable tester to check proper pin-out and continuity between cable ends before connecting devices. This is especially important with the TouchPanel Programmer as a mis-wired cable can damage the MCP when connected to the TPP.

Each keypad connector on the MCP is an RJ45. There are 16 connectors on the MCP. This means that normally up to 16 keypads can be connected to the MCP. However, you may connect more than 16 keypads.

For example, if you have 18 keypads in a single CL24 system, you can still make this work. You would use 2 keypad splitters to connect all 18 keypads. A keypad splitter makes 1 Keypad jack into 2. Each keypad jack on the MCP can support up to 6 buttons. A splitter allows you to connect a 2 button keypad on one split jack and a 2 or 4 button keypad on the other.



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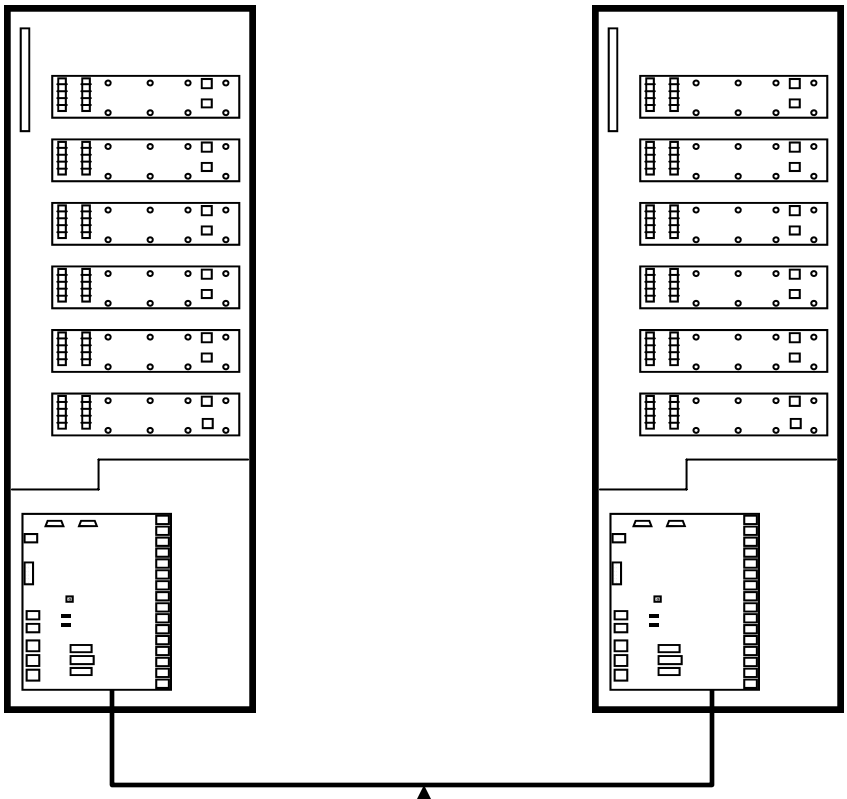
Two LiteJet systems can be connected to operate as a LiteJet 48. This option requires the LiteJet 48 firmware and a Null Modem RS232 cable between the 2 panels. The RS232 cable between the 2 must not run more than 100 feet. There is an extra charge for the LiteJet 48 firmware upgrade. All LiteJet panels are shipped as single UNITs and must be upgraded in the field to become LiteJet48s.

The LiteJet 48 can be programmed either from the TouchPanel Programmers or the LiteJet programming software. The LiteJet 48 option allows a button on 1 panel to control a Light/LV Relay/Fan on the other panel. All Scenes are common between the 2 panels. This means that SCENE 10 on UNIT 1 will always activate with SCENE 10 on UNIT 2.



NULL MODEM CABLE
Pin 2 to Pin 3
Pin 3 to Pin 2
Pin 5 to Pin 5
Male DB-9 on Both Ends
Connect to RS232-2 on both MCPs

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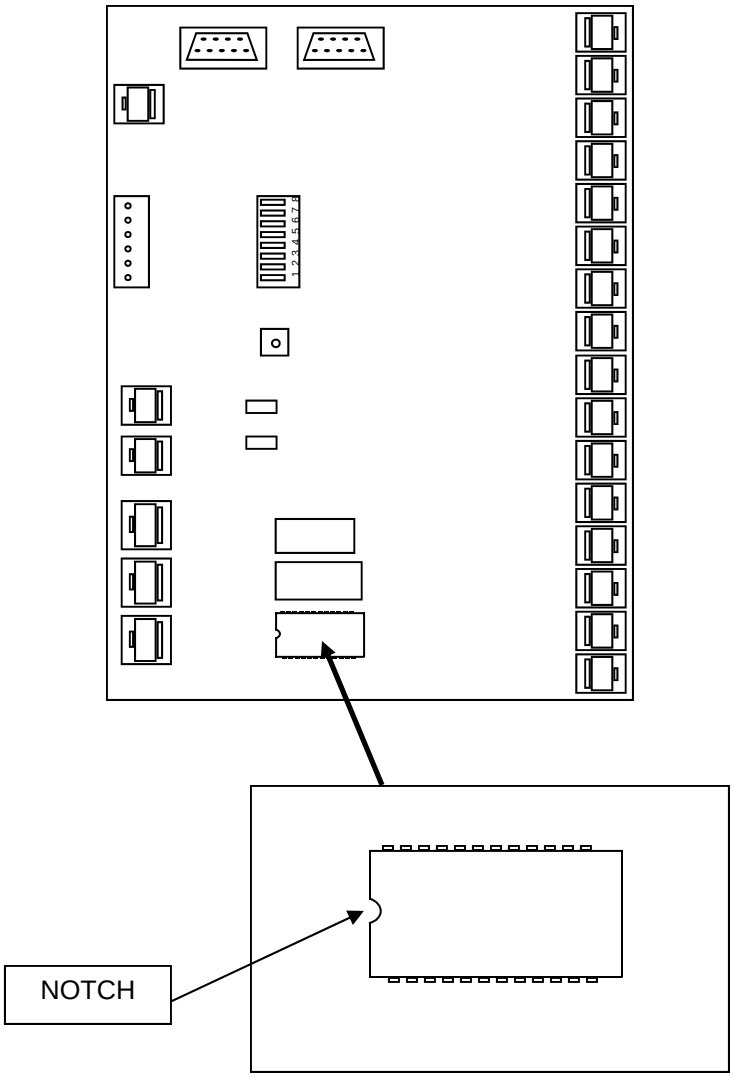
All LiteJet systems are shipped as single Units. They must be upgraded in the field to act as LiteJet 48s. The LiteJet Multisystem communicator kit consists of 2 EPROM chips. 1 EPROM from each MCP must be replaced in order to convert the systems to a LiteJet 48.

BE CAREFUL to replace the EPROMS correctly. If any of the pins are bent or if the EPROMS are places BACKWARDS, the system WILL NOT OPERATE.



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Problem	Possible Solution
The LiteJet system does not appear to be working at all.	Check the power to the system from the 12V 1600 mA wall transformer. Does the outlet supplying the transformer have power? When you have power you should see a GREEN LED on the MCP lit.
One of the keypads is not working.	Test your cable and RJ45 connections. Make sure it is programmed correctly.
None of my keypads work.	Check power to the MCP. Make sure your connectors are terminated straight through.
The Touch Panel Programmer displays: “Turn OFF DIP SWITCH #1 on Master Control Panel”	You’ll need to access the Dipswitches on the MCP. The MCP is at the bottom of the Relay Panel. Turn off the #1 switch.
On one of my relay modules, I have a Green LED lit but no Yellow LED.	Make sure the RED LED is lit. If not check the breaker. If the RED LED and the GREEN LED are lit but you have no YELLOW LED then you have a faulty relay. You’ll need to replace it.
I have a Light that stays ON all the time no matter what I do.	If the Yellow LED stays lit even with the GREEN LED OFF, you have a relay that has failed closed. You’ll need to replace it.
All Lights on the System stay ON no matter what I do.	Check the Manual Override switch at the bottom of the MCP. It may be in the Override(UP) position. If it is, then turn it to the Normal(DOWN) position.
The RED LED on the MCP is flashing.	This is an indication of a stuck switch input. You can find the stuck switch by connecting to the system with the PC software and going to the TOOLS section. The wires to the switch may be shorted together.

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Lights Worksheet

Light #	Name	Dimmer?	Soft On?	Soft Off?	Dim Rate	Soft Rate	Include in All On?	Include in All Off?	Preset Level
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									

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Keypads 1-4 Worksheet

Keypad #	1	Location:			
		Button Name	Light or Scene?	Light or Scene #	Notes
Button	1				
Button	2				
Button	3				
Button	4				
Button	5				
Button	6				

Keypad #	2	Location:			
		Button Name	Light or Scene?	Light or Scene #	Notes
Button	7				
Button	8				
Button	9				
Button	10				
Button	11				
Button	12				

Keypad #	3	Location:			
		Button Name	Light or Scene?	Light or Scene #	Notes
Button	13				
Button	14				
Button	15				
Button	16				
Button	17				
Button	18				

Keypad #	4	Location:			
		Button Name	Light or Scene?	Light or Scene #	Notes
Button	19				
Button	20				
Button	21				
Button	22				
Button	23				
Button	24				

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Keypads 5-8 Worksheet

Keypad #	5	Location:			
		Button Name	Light or Scene?	Light or Scene #	Notes
Button	25				
Button	26				
Button	27				
Button	28				
Button	29				
Button	30				

Keypad #	6	Location:			
		Button Name	Light or Scene?	Light or Scene #	Notes
Button	31				
Button	32				
Button	33				
Button	34				
Button	35				
Button	36				

Keypad #	7	Location:			
		Button Name	Light or Scene?	Light or Scene #	Notes
Button	37				
Button	38				
Button	39				
Button	40				
Button	41				
Button	42				

Keypad #	8	Location:			
		Button Name	Light or Scene?	Light or Scene #	Notes
Button	43				
Button	44				
Button	45				
Button	46				
Button	47				
Button	48				

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Keypads 9-12 Worksheet

Keypad #	9	Location:			
		Button Name	Light or Scene?	Light or Scene #	Notes
Button	49				
Button	50				
Button	51				
Button	52				
Button	53				
Button	54				

Keypad #	10	Location:			
		Button Name	Light or Scene?	Light or Scene #	Notes
Button	55				
Button	56				
Button	57				
Button	58				
Button	59				
Button	60				

Keypad #	11	Location:			
		Button Name	Light or Scene?	Light or Scene #	Notes
Button	61				
Button	62				
Button	63				
Button	64				
Button	65				
Button	66				

Keypad #	12	Location:			
		Button Name	Light or Scene?	Light or Scene #	Notes
Button	67				
Button	68				
Button	69				
Button	70				
Button	71				
Button	72				

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Keypads 13-16 Worksheet

Keypad #	13	Location:			
		Button Name	Light or Scene?	Light or Scene #	Notes
Button	73				
Button	74				
Button	75				
Button	76				
Button	77				
Button	78				

Keypad #	14	Location:			
		Button Name	Light or Scene?	Light or Scene #	Notes
Button	79				
Button	80				
Button	81				
Button	82				
Button	83				
Button	84				

Keypad #	15	Location:			
		Button Name	Light or Scene?	Light or Scene #	Notes
Button	85				
Button	86				
Button	87				
Button	88				
Button	89				
Button	90				

Keypad #	16	Location:			
		Button Name	Light or Scene?	Light or Scene #	Notes
Button	91				
Button	92				
Button	93				
Button	94				
Button	95				
Button	96				

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Lights Worksheet Example

Light #	Name	Dimmer?	Soft On?	Soft Off?	Dim Rate	Soft Rate	Include in All On?	Include in All Off?	Preset Level
1	Kitchen	Yes	Yes	Yes	5	2	Yes	Yes	80%
2	Garage	No	No	No	0	0	Yes	Yes	100%
3	Dining	Yes	Yes	Yes	7	4	Yes	Yes	75%
4	Bedroom	Yes	Yes	No	6	3	No	Yes	80%

Keypads Worksheet Example

Keypad #	14	Location:	Foyer		
		Button Name	Light or Scene?	Light or Scene #	Notes
Button	79	Chandelier	Light	5	Foyer Chandelier
Button	80	Front Porch	Light	21	Front Porch Light
Button	81	Landscape	Scene	11	Landscape Scene
Button	82	Welcome	Scene	6	Welcome Home Scene
Button	83				NOT USED
Button	84				NOT USED

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Button -	Either on the Touch Panel Programmer(TPP) or Wall Keypad. Can be programmed to control a single Light or Scene(group of lights).
Dimmer - a	A control such as the LiteJet solid-state relay which can vary the intensity of lighting load.
Keypad -	A wall mounted control with either 2, 4,or 6 Buttons. The Keypad is connected to the Master Control Panel(MCP) with CAT5 cable.
Master Control Panel -	The “brain” of the LiteJet system. The MCP takes in control inputs from buttons and sends control outputs to solid-state relays, fans, or low voltage relays.
Relay -	The LiteJet uses solid-state relays which are capable of dimming incandescent, magnetic low voltage, and some electronic low voltage lighting fixtures. CL24 relays can turn on and off any electrical device(as long as the power draw is within the relay rating).
TPP -	The LiteJet TouchPanel Programmer is used to configure the CL24 LiteJet system as well as control 24 functions with the buttons on the front panel.
RS232 -	A communication method used for programming the LiteJet from a computer or interfacing LiteJet with other control systems.
RS485 -	Another communicating method used for controlling other devices or receiving commands from other control systems. One of the LiteJet communication ports can be configured for RS485.

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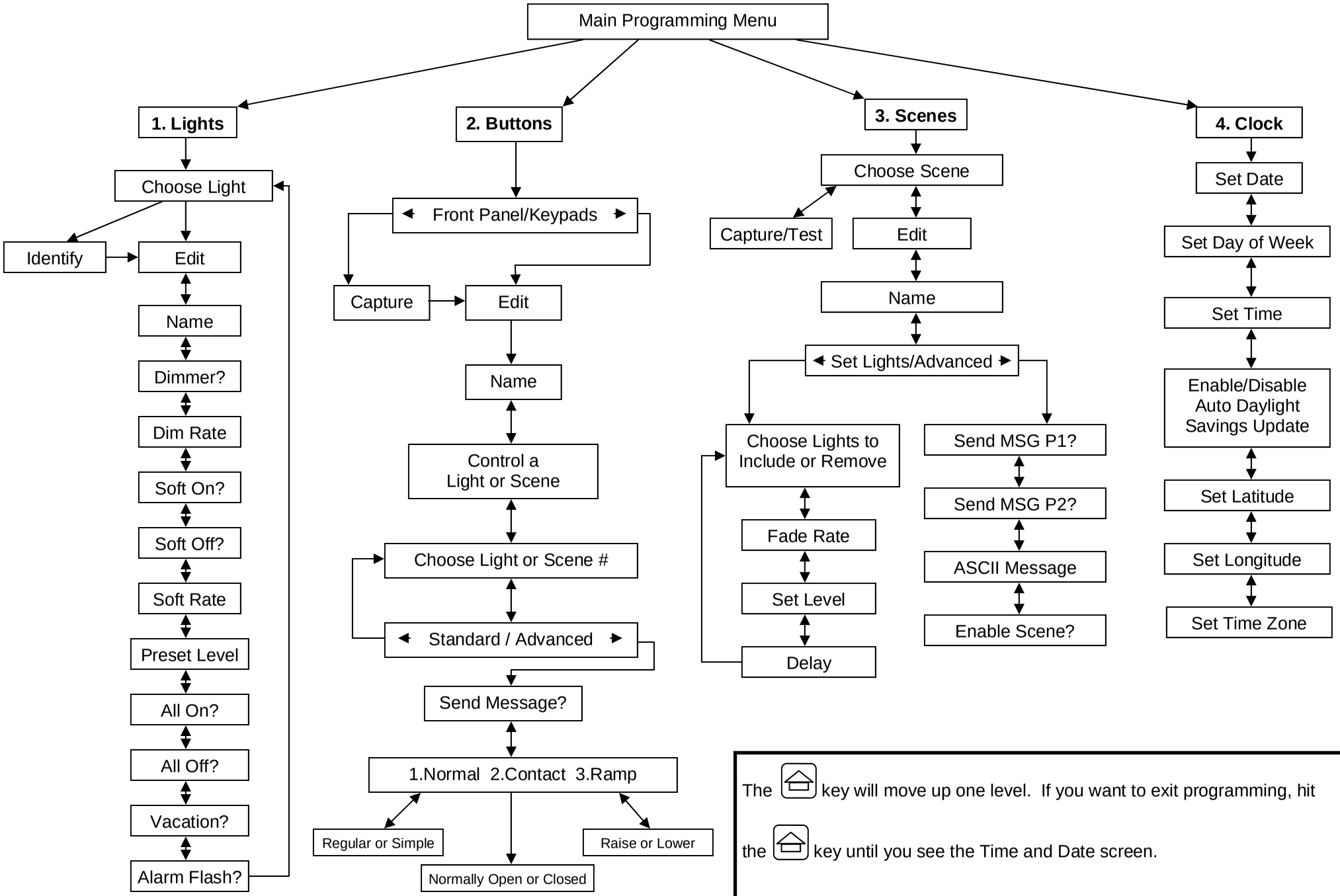
LiteJet Programming Flowchart



The key will move up one level. If you want to exit programming, hit the key until you see the Time and Date screen.

Use the SELECT button to make spaces when typing in text.