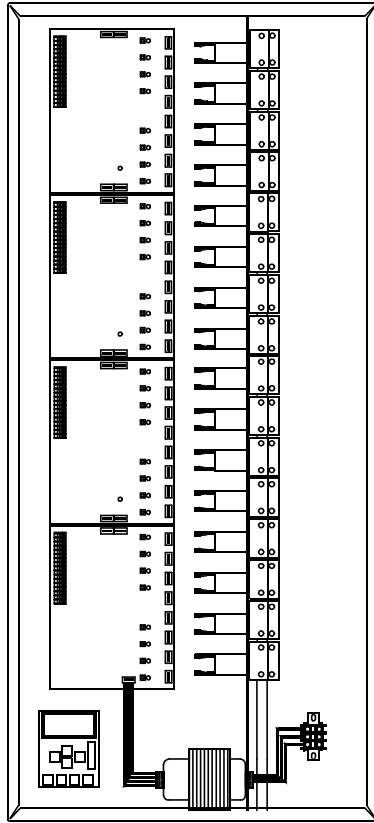


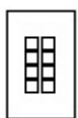
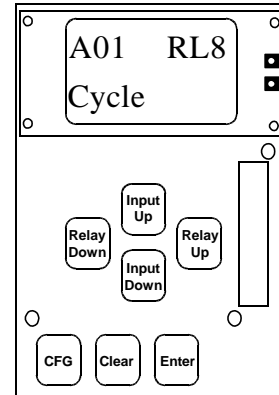
Touch-Plate® Lighting Controls

CPSP 0008/0048 System Manual



*Control
Plus
Soft Patch*

CPSP-0008 Through CPSP-0048 System Manual



Touch-Plate® Lighting Controls

1830 Wayne Trace
Fort Wayne, IN 46803

Phone: 260-424-4323
Fax: 260-420-3651

Sales Support Email: sales@touchplate.com
World Wide Web: <http://www.touchplate.com>

TABLE OF CONTENTS

I.	PREFACE	2
II.	OVERVIEW	3
III.	DESCRIPTION.....	4
	A. Relays.....	5
	B. Power Supply	6
	C. Master Board.....	7
	D. Slave Board.....	8
	1. Inputs	9
	2. Outputs.....	10
	a. Pilot Lights	10
	b. Relays	10
	E. Keypad	11
	1. Button Descriptions	12
	a. CFG	12
	b. Clear	12
	c. Enter	12
	d. Left/Right	12
	e. Up/Down	12
	2. Input Functions	13
	a. On	13
	b. Off	13
	c. Cycle.....	13
	d. Maintain.....	13
	e. Blk Warn	13
	f. Flash	13
	g. A-Off 15, 30, 1H, 2H.....	13
IV.	INSTALLATION	14
	A. Planning	14
	1. Pilot Light Wiring.....	14
	2. Switch Wiring.....	14
	B. Enclosure.....	15
	C. Control Plus Soft Patch Power Connection	15
	D. Electrical Connections	16
	1. High Voltage.....	16
	2. Power Supply.....	17
	3. Direct Operation Of Relays	17
	4. Connecting The Control Wires.....	17
	5. Running Control Wires.....	17
	6. Inputs	18
V.	SPECIFICATIONS.....	18
	A. Enclosure.....	18
	B. Relay (Model 3000-PL	18
	C. Transformer.....	18

I. PREFACE

This manual contains all the information necessary to install and start the Control Plus Soft Patch 8 through 48 lighting control panels.

Typical System Layout

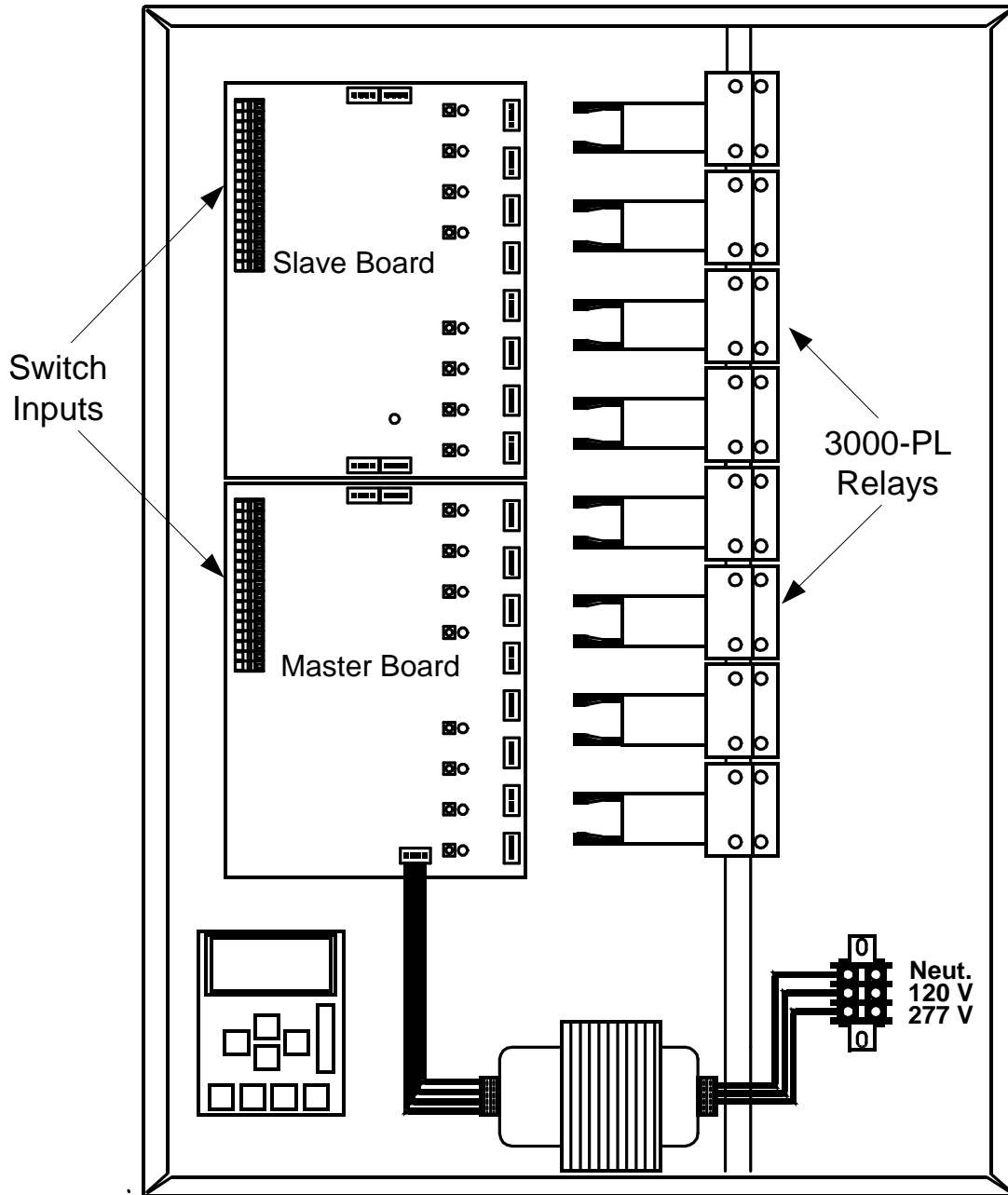


Figure I-1 Typical System Layout

II. OVERVIEW

The Control Plus Soft Patch is the best programmable low-voltage control panel on the market. The panels are economical, versatile, and easy to operate.

The panel's main features are:

- Soft Patch Matrix allows any input to control any or all outputs. Soft Patch also allows the same input to have different control functions per output, within the variety of input control functions. (See list of functions on page 13)
- Up to 48 loads can be controlled individually or in groups
- Each load (or group of loads) can be controlled by on/off momentary action switches or by maintained contact switches.
- All switch input actions override previous commands.
- Completely modular design and assembly.
- Graphic display panels, LED type, which show the status of each relay, can be used with the Control Plus Soft Patch Series.
- Loads can be controlled from many locations via low-voltage #22 AWG wire.
- The relay panels can be powered by 120 or 277 VAC.
- All connectors are color coded.
- Easy to interface with other systems in the building.
- Can incorporate occupancy sensors and photocells.
- Override buttons directly on the circuit boards.
- Sixteen programmable inputs per Soft Patch control board.

III. DESCRIPTION

Each panel contains a Transformer, a control board for every eight relays, and the relays themselves. These components are mounted in an UL and ETL-approved enclosure.

The relays are connected to the control boards by push-in connectors.

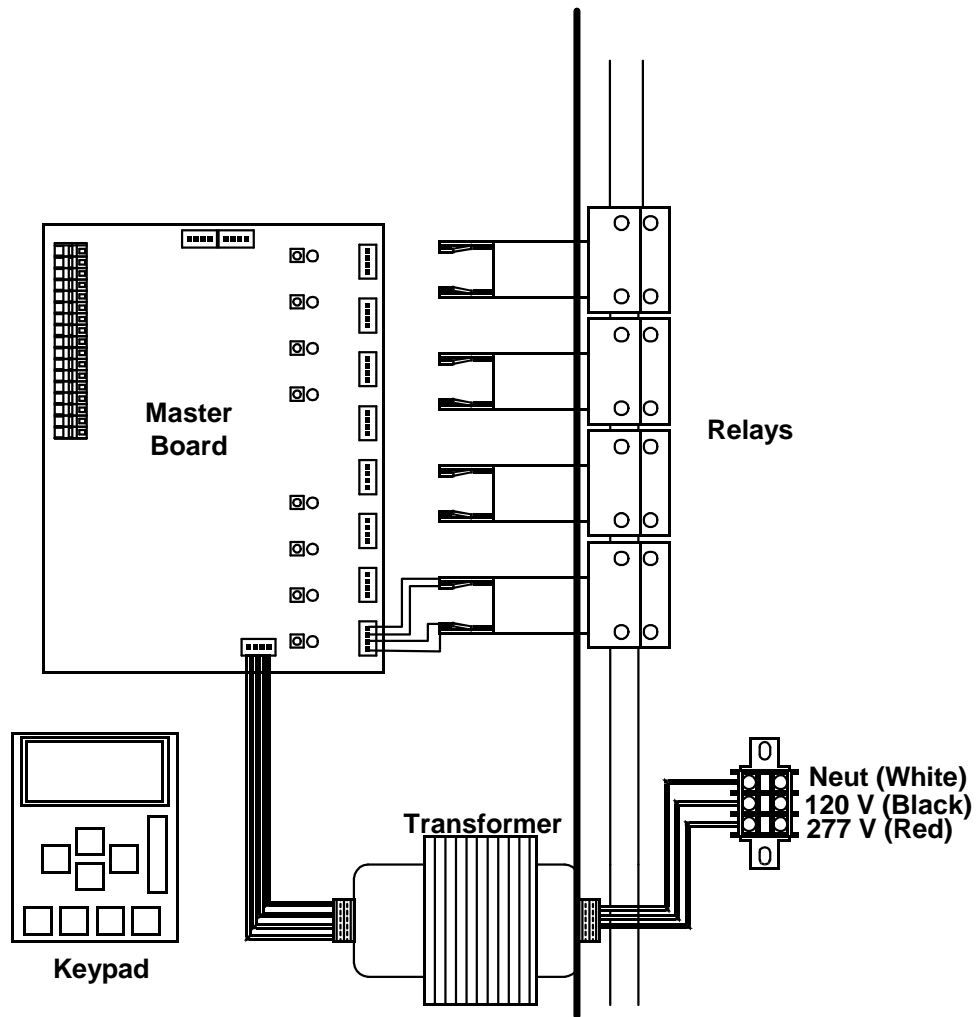


Figure III-1 System Layout

A. Relays

The panels use the Touch-Plate 4000-PL relay. This relay can switch loads rated to 20 amps at 277 VAC Tungsten or Ballast (and 347VAC for Canada). A secondary contact is provided for use with pilot lights.

When the relay is operated, it changes state, from off to on or vice versa, and mechanically latches in that state. No holding current is required. As a result, heat in the enclosure is minimized.

The secondary contact is used to illuminate lighted switches, light indicators in graphic panels, and other devices. It is also used to provide a status output for the control board. The status output can be used by a computer and other devices.

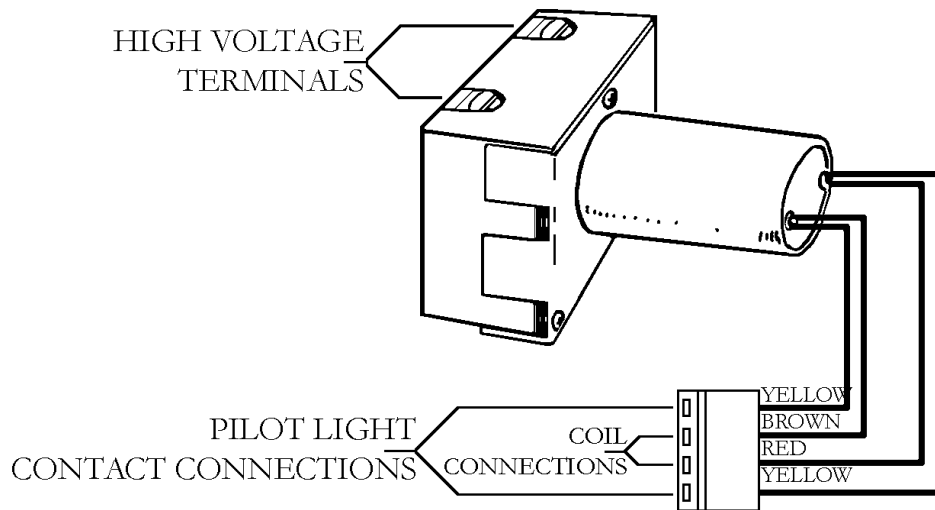


Figure III-2 Touch-Plate Relays

B. Power Supply

The primary feed of the transformer is 120 VAC (Black) or 277 VAC (Red). The white wire is Neutral. The power supply transformer (CPS-8004) supplies the Soft Patch Master Board with a 22 VAC switch voltage and a 6.3 VAC pilot light voltage. The 8004 Transformer plugs into the four-pin connector on the Master Board. (A 347VAC version of the CPS-8004 is available for Canada.)

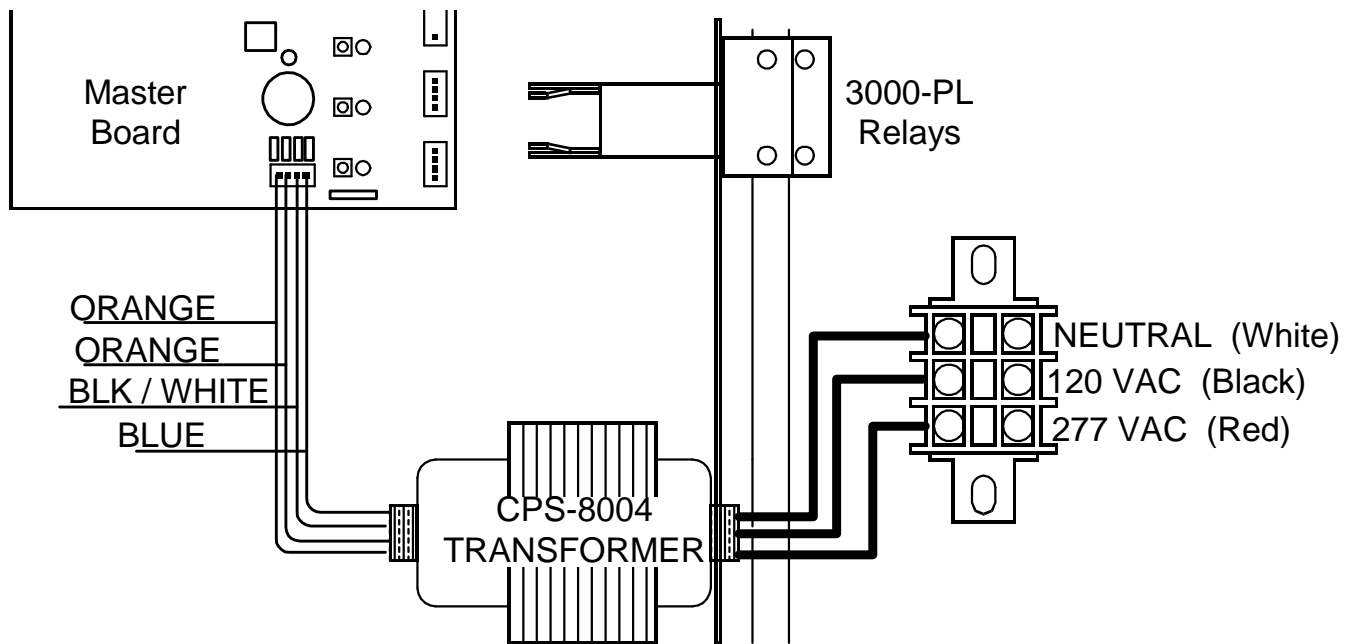


Figure III-3 Transformer Power Supply

C. Master Board

The Soft Patch Master Board is the brain for the rest of the panel. The SP Keypad connects directly into the Master Board through a twenty-pin harness. The sixteen inputs on the left side of the board are programmed by the keypad. Each Master Board has a total of eight-relay outputs and pilot light feedback for each relay.

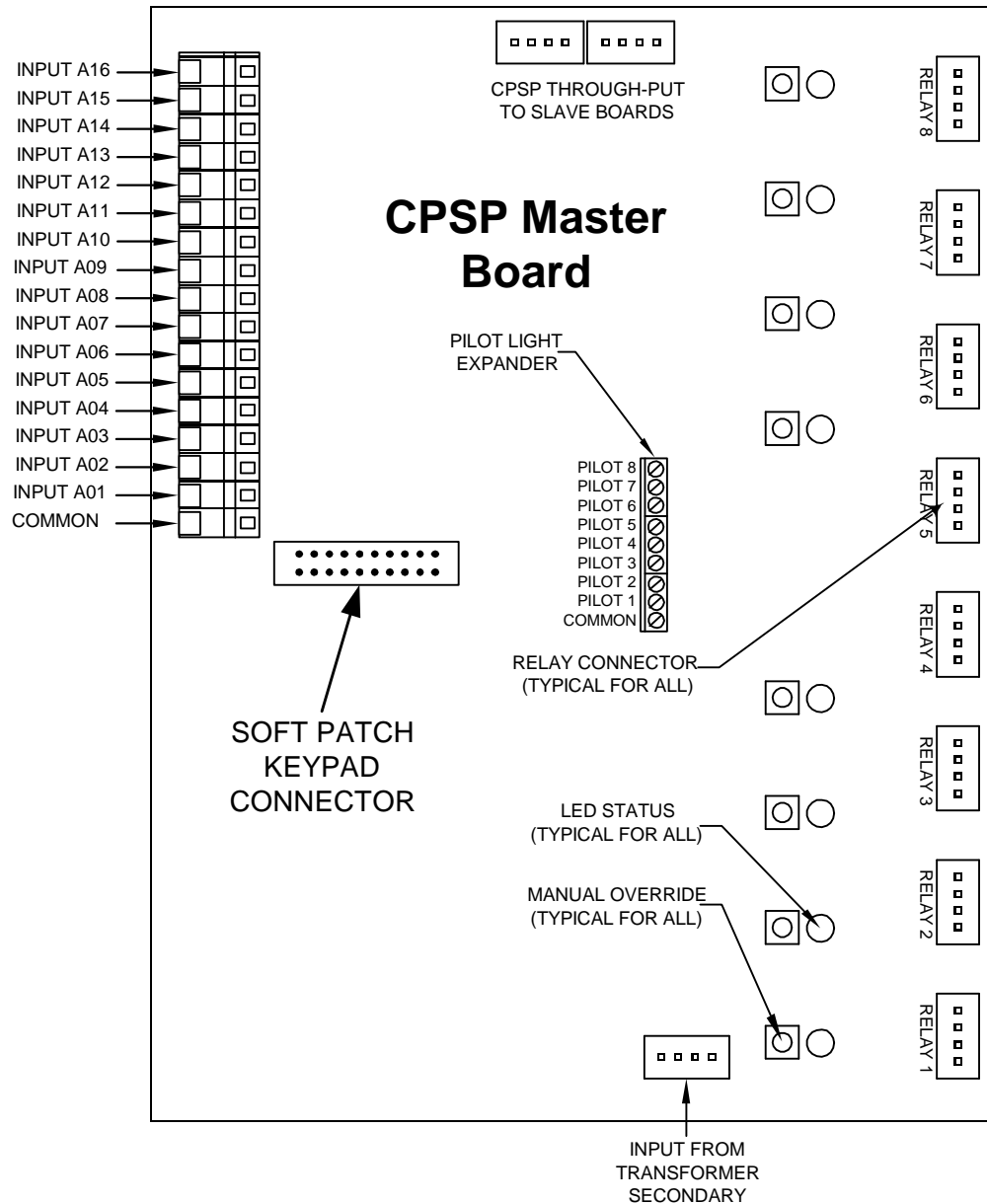


Figure III-4 Soft Patch Master Board

D. Slave Board

The Slave Board is similar to the Master Board. The Slave Board has sixteen programmable inputs on the left and eight relay outputs on the right along with eight pilot light feedback outputs.

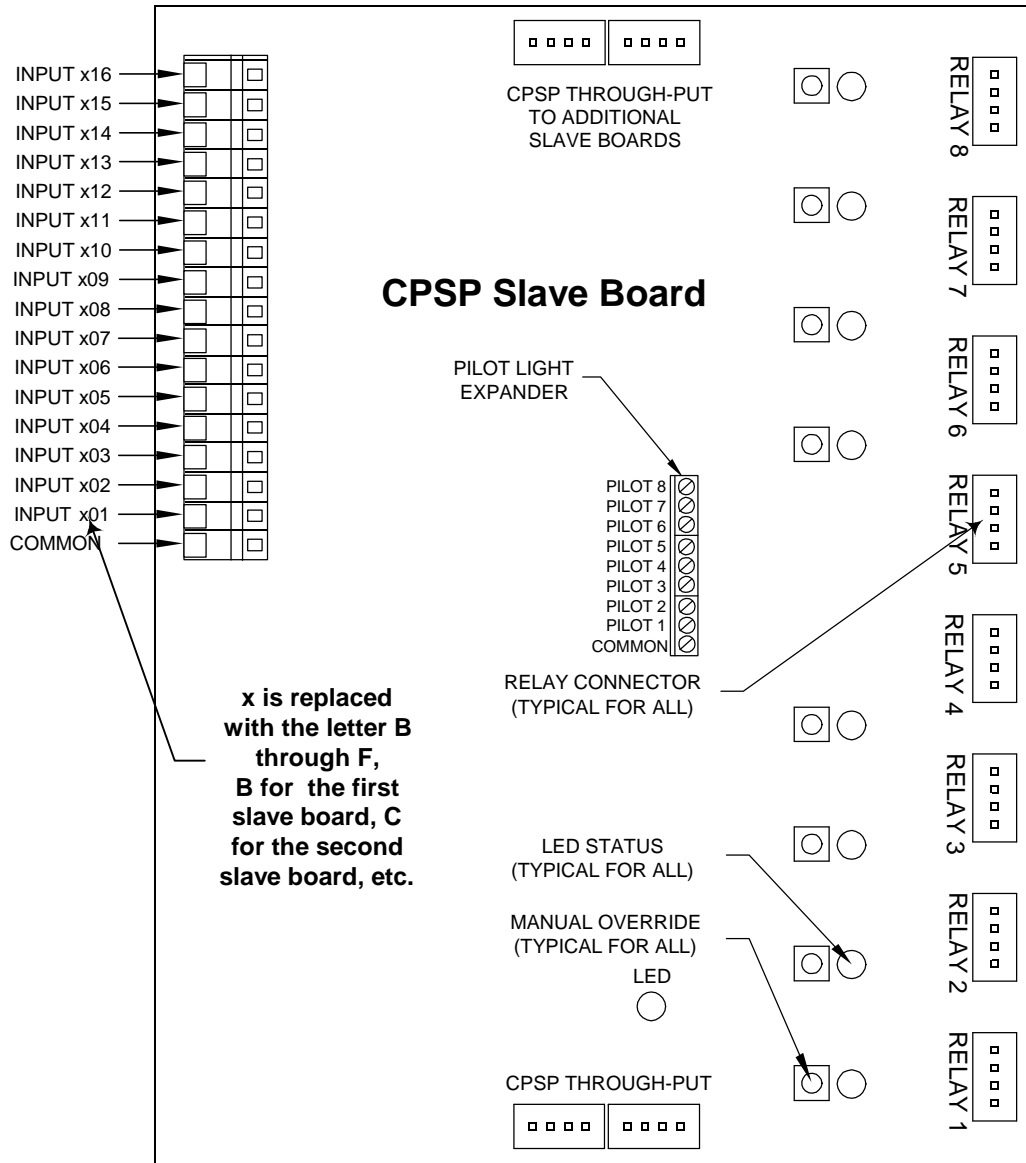


Figure III-5 Soft Patch Slave Board

1. Inputs

The input terminal block provides a switch input for each relay. There are sixteen terminals on each control board in the panel

Here is how the quick connect terminals work:

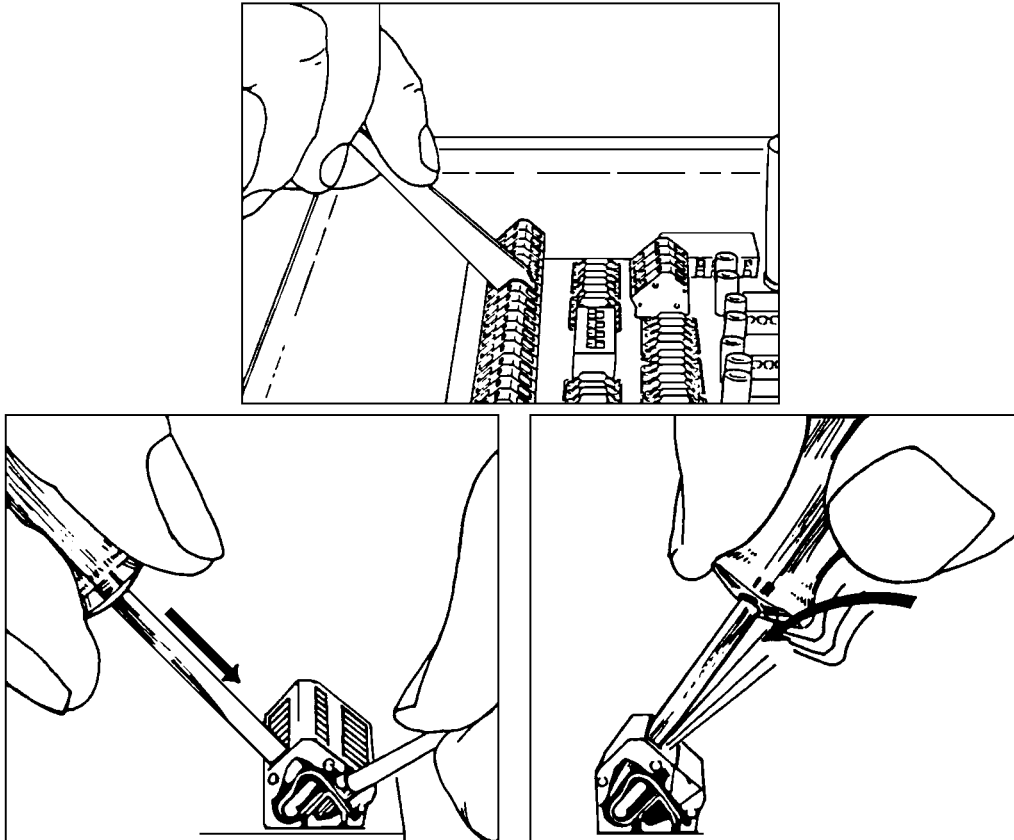


Figure III-6 Quick Connect Terminals

These terminals are best operated by the special tool provided. (If it is lost, use a small screwdriver.)

2. Outputs

a. Pilot Lights

Allows for Pilot Light feedback to the switch to identify if the load is ON or OFF. The L.E.D. output is regulated to 5 VDC.

b. Relays

Provides the high voltage switching capabilities for the loads. In addition, they provide auxiliary contacts to give L.E.D. indication on the circuit boards.

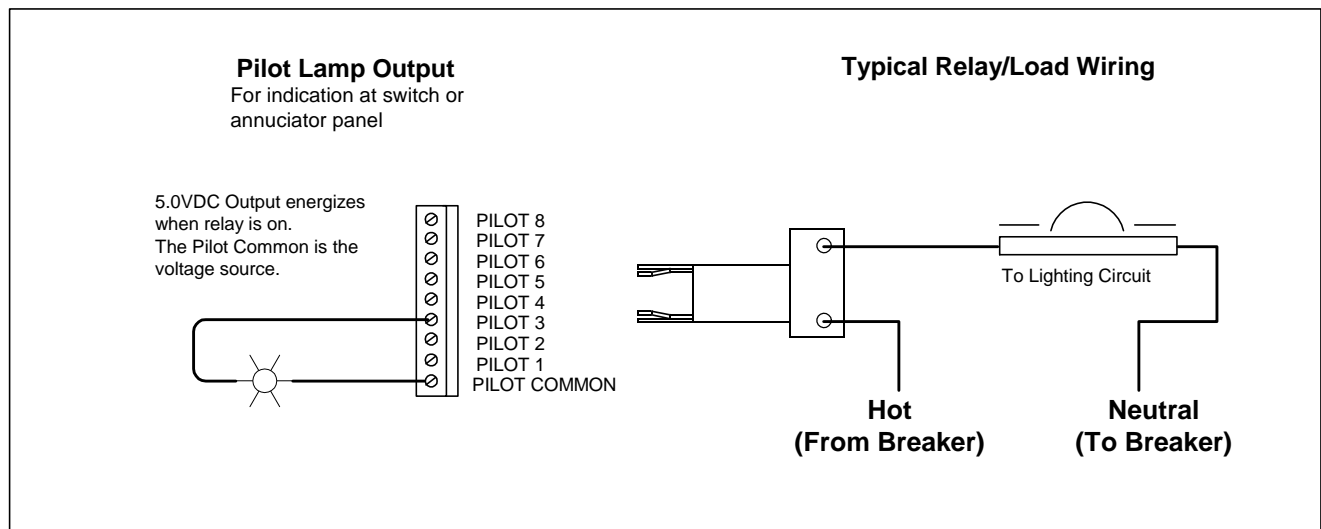


Figure III-7 Pilot Lamp Wiring Diagram

Figure III-8 Relay Wiring Diagram

E. Keypad

The Soft Patch Keypad allows the operator to program the inputs to do whatever is needed. The keypad has a total of seven push buttons and a LCD display. The twenty-pin connector mates to the Soft Patch Master Board.

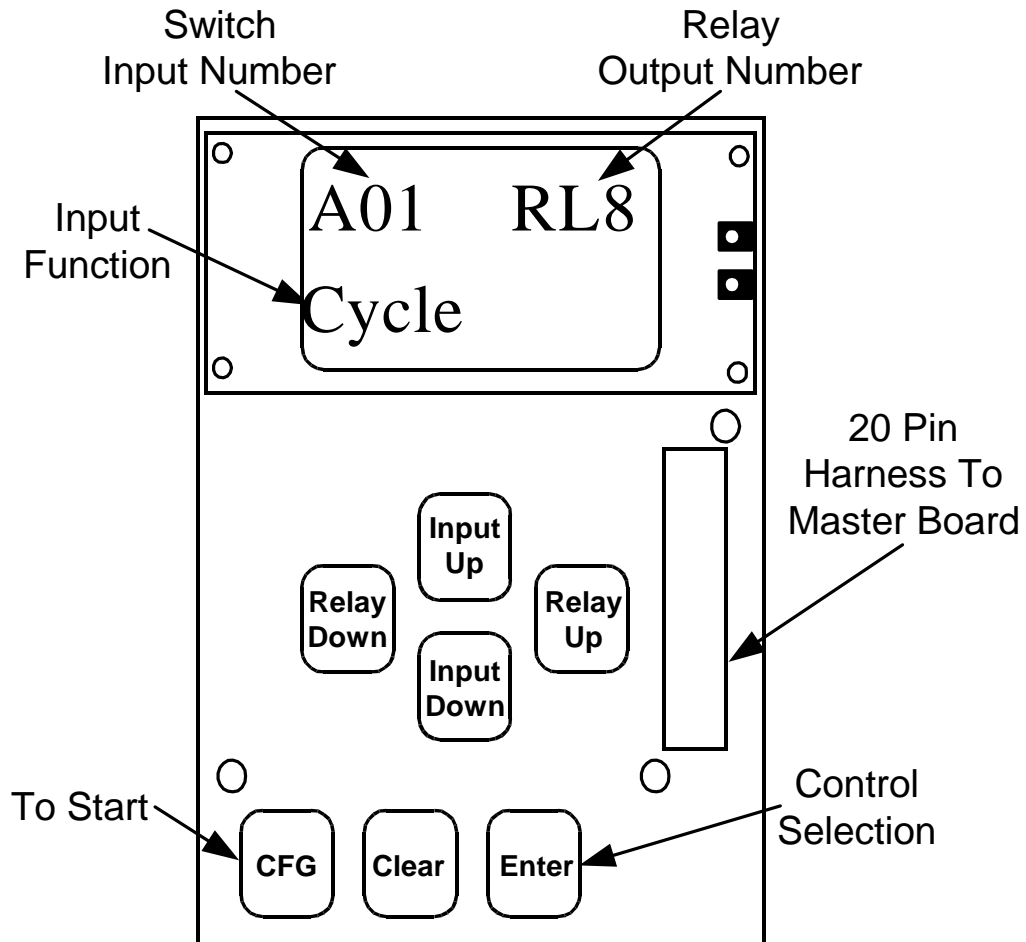
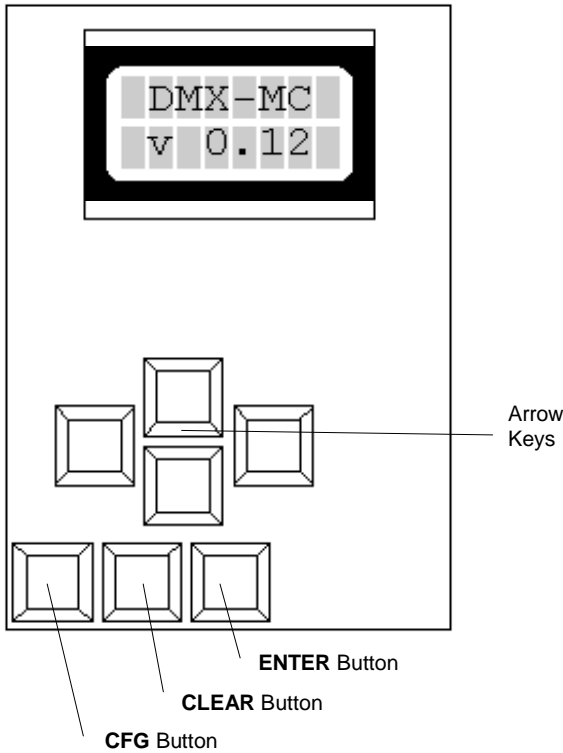


Figure III-9 Soft Patch Keypad

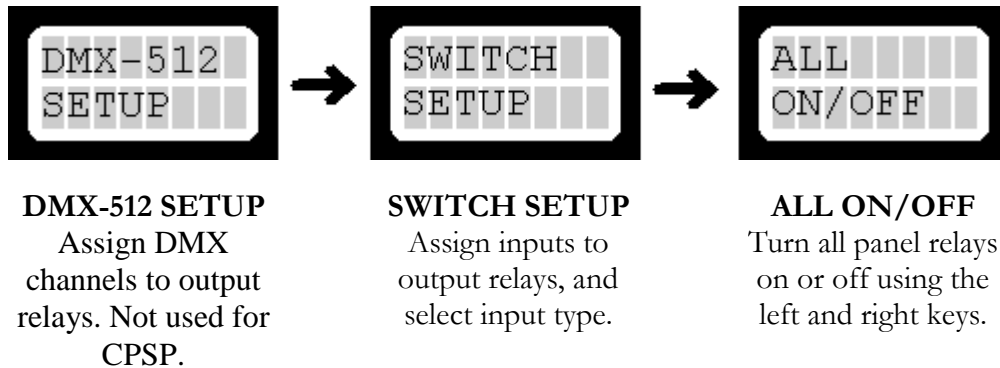
1. CPSP Keypad Operations



- Use the button labeled **CFG** to scroll through the menu options.
- Use the **CLEAR** button to exit out of any menu and return to the status display.
- Use the **ENTER** button to select a menu option or set a variable.
- The arrow keys (**LEFT, RIGHT, UP, DOWN**) are used to select an input, SP (DMX) channel or relay.

CPSP Keypad Menus

Using the **CFG** button, scroll through the menu options, Press **ENTER** to select an option.



2. Input Functions

a. On

This enables you to switch the programmed outputs (relays) to the ON state with one touch of the input (button), and won't change the ON relays OFF.

b. Off

This enables you to switch the programmed outputs (relays) to the OFF state with one touch of the input (button), and won't change the OFF relays ON

c. Cycle

This enables you to switch a single relay, or multiple relays as a zone, ON and OFF with the same input. If one or more relays in a zone are overridden to an opposite state, the Master Controller will keep all relays in the zone in synch by monitoring the status of each relay as well as the commands to the Input.

d. Maintain

This input is activated when the switch input is closed and opened when the switch contact is open. (commonly used for photocells and motion sensors)

e. BWarn (Blink Warn)

This option gives a blink warn to the input five minutes before the actual output will go OFF. When this Input signal is given, the output goes OFF for one second, then back to ON. Five minutes later the output goes OFF unless an input is touched which is assigned to the same output. This will prevent the OFF command.

f. Flash

This input is used for security purposes. It will Flash the programmed relays at 1 second intervals, ON and OFF. For use with security systems, motion sensors, and smoke detectors.

g. A-Off 15, 30, 1H, 2H (Auto Off)

This enables you to set the input to the desired Auto Off time. When you activate the input, the relay turns ON, and then will turn OFF in the programmed amount of time. The times can be set to the following: 15 minutes, 30 minutes, 1 hour, 2 hours

IV. INSTALLATION

The Control Plus Series is easy to install and connect. It is also easy to adapt to the user's needs.

A. Planning

Because of the flexibility of the Control Plus SP, it is all too tempting to skip details in planning an installation. You can save a lot of time, however, by carefully considering the needs of your installation before you start work.

The following matters should be taken into consideration in planning your installation:

1. Pilot Light Wiring

The LED output section of the CPSP is meant to handle LED's not incandescent outputs. 22-gauge wire is normally used. **DO NOT USE** wire heavier than 18 gauge due to wire entry limitations of the terminal blocks.

Use a single thicker wire or several wires in parallel, for the pilot common wire.

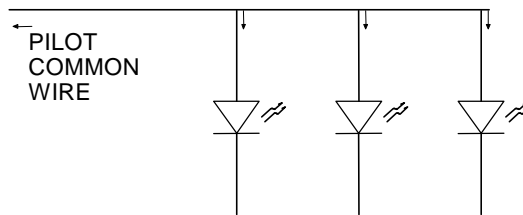


Figure IV-1 Pilot Light Wiring

2. Switch Wiring

Since the switch wires carry very little current, 22-gauge wire can be used. A minimum of 22-gauge wire is necessary to ensure that the wire is strong enough to be pulled through conduits and other tight spaces.

NOTE: Don't use twisted-pair wires for wiring switches, because signals induced in the system may give rise to erratic behavior.

Use 22-gauge wire for distances of up to 3,000 feet. Longer distances require thicker wire. Use shielded wire for long runs in areas with strong radio signals.

B. Enclosure

The enclosure contains the Transformer, the control boards, and the relays. To install these components, first remove the enclosure door.

Place the enclosure against the wall and secure it with four screws. Then reinstall the door.

IMPORTANT!

Never work on system when the power is on. Any work done on the Control Plus Series when the power is on will void the warranty. Before reconnecting the power, check all the connections.

C. Control Plus Soft Patch Power Connection

Control Plus SP panels require their own circuit breakers to prevent unrelated overloads or short circuits.

When working with a Control Plus SP panel, turn the corresponding circuit breaker off.

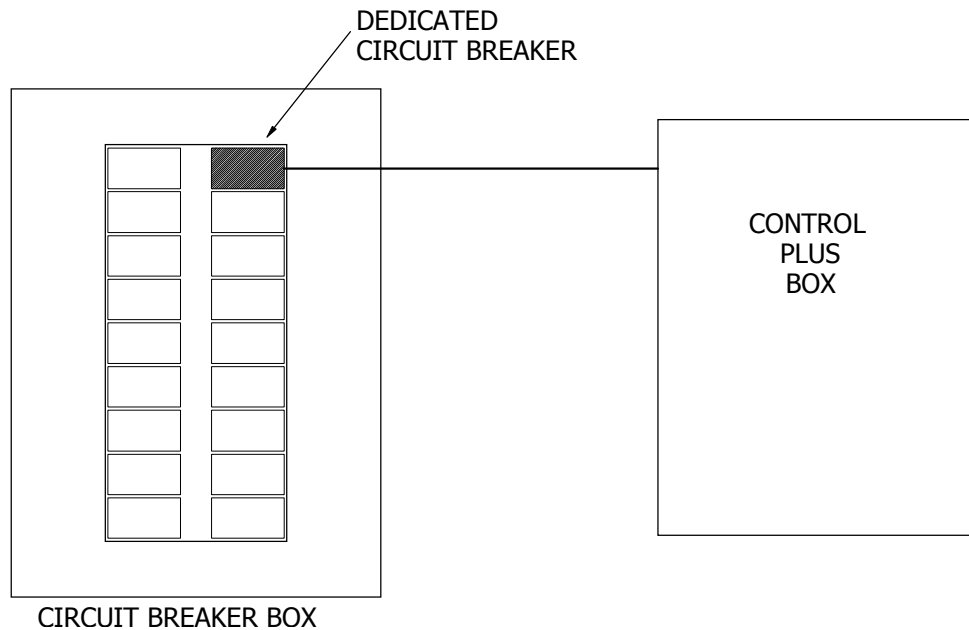


Figure IV-2 Circuit Breaker

D. Electrical Connections

1. High Voltage

One of the terminal screws on each relay should be connected to 120 or 277 VAC. (The voltage varies with the item being controlled).

Power to the relays must come via a circuit breaker. The circuit breaker must not be rated for more than 20 amps, which is the relay's maximum rating.

The connected load to each relay should not be more than that specified by the electrical code for your area.

The power from one breaker can be spread out over more than one relay as long as the above requirements are met.

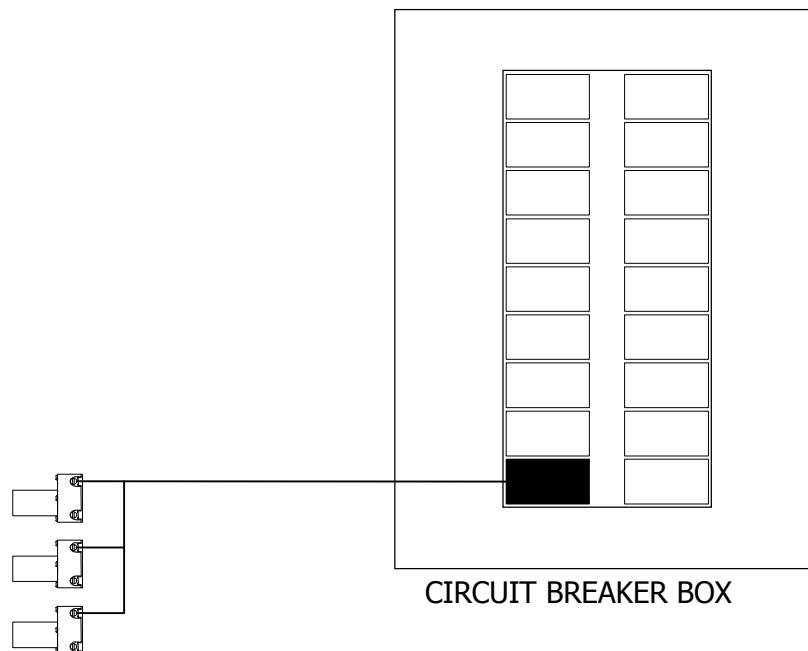


Figure IV-3 Relay HV Connection

The relay screw terminals can accept up to two #10 AWG copper wires. Be sure not to exceed the maximum current that can be carried by this conductor size according to the local electrical codes.

If two wires are inserted into one of the relay terminals, they should not differ by more than one wire size. Otherwise the pressure on the smaller wire will be reduced, thus preventing a good electrical contact.

Use 25-pound inch torque on the screws.

NOTE: Make sure load power at the circuit breaker is *off* before connecting any loads to the relay.

2. Power Supply

Connect the panel to its own circuit breaker. Use the hot (120 or 277 VAC) terminal connection.

Make sure that the panel has not been damaged during shipment. Turn on the circuit breaker. The relays should be set in the on position, so all the LED's on the power and control boards should be on.

Check the following points:

- When power is turned on, no relay should change state. If a relay cycles when power is turned on, make sure that the transistor in front of the relay is cool to the touch. (Be careful! If the transistor is hot, it could be *very* hot.) If it is hot, unplug the relay because the transistor is bad.
- Make sure that no LED is brighter than any other LED. If one is brighter, unplug the associated relay, because it is more than likely bad. See the troubleshooting chapter for instructions on testing relays.

3. Direct Operation Of Relays

To operate the relay directly, press the manual override buttons on the printed circuit board.

4. Connecting The Control Wires

After all the relays are on, the lights can be controlled using their corresponding circuit breakers. Switch off the power to the Control Plus SP so that you can safely make the necessary board connections. The warranty is voided if the board is connected with power on.

5. Running Control Wires

IMPORTANT! *Never run control wires in the same conduit with high voltage wiring (110, 240, 277 AC or higher) even if the building code permits it.*

In long conduits, control wires running next to current-carrying conductors can induce sufficient voltage in the switch wires to cause random switching, bad circuit boards and, in extreme cases, burned out transistors and relays.

6. Inputs

Inputs are wired as shown in the earlier diagrams. One side of the switch must be connected to a switch common terminal on the board; the other side must be connected to the relevant color-coded connector on the control boards.

V. Specifications

A. Summary Of Features & Dimensions

Model #	Master Boards	Slave Boards	Programmable Inputs	Master Control	Outputs		Dimensions		
					Hi-V	Lo-V	L	W	D
CPSP-0008	1	0	16	YES	8	8	18"	14"	4 3/4"
CPSP-0016	1	1	32	YES	16	16	24"	18"	4 3/4"
CPSP-0024	1	2	48	YES	24	24	34"	18"	5"
CPSP-0032	1	3	64	YES	32	32	44"	20"	5"
CPSP-0040	1	4	80	YES	40	40	44"	20"	5"

Figure V-1 Summary of Features and Dimensions

RELAY (Model 4000-PL)

SPST Mechanically Latching Main Contact:

1.0 h.p. at 125VAC

1.5 h.p. at 250VAC

20 amps at 125VAC or 277VAC (347VAC CSA Listed)

(Tungsten and Ballast)

Auxiliary contact: 1 amp at 6.3VAC

TRANSFORMER

Primary Inputs (Accepts Either):

277VAC or 120VAC

Secondary Outputs:

6.3VAC at 5.5 amps

22VAC at 2.5 amps