

## 60W / 88W LOW VOLTAGE CONTROL UNIT ASSEMBLY AND INSTALLATION INSTRUCTIONS:

All parts are approved for year round outdoor use.

### A. CONTROL UNIT PLACEMENT

**Note:** Units installed near swimming pools should be plugged into a GFCI protected outlet and the control unit should be mounted at least 3 metres (10 ft.) from the inside edge of the pool.

1. Insert the ends of the low voltage cable, with the ring type terminals, onto the machine screws, found in the parts bag. Thread each screw into the thread at the bottom of each hole located on the back of the control unit (Fig. #1).

2. Mount your control unit (close to an outdoor receptacle) in an unshaded area where it can readily sense light and darkness. The sensor, on the front of the control unit, must be at a sufficient height above ground level to be out of the shade of shrubbery or other obstructions. The control unit should be kept clear from any areas where a bright light may shine directly on it, possibly causing the sensor to turn your lights off. If mounting on a wooden surface, use a large screw, leaving the head 0.6 cm (1/4") away from the surface. Hang the unit and tighten the screw. If mounting on a brick or concrete surface, drill a 0.5 cm (3/16") diameter hole and insert a plastic anchor. Let the screw protrude 0.6 cm (1/4") away from the surface. Hang and tighten the screw.

3. Feed cable thru hollow top rail for vinyl posts, as shown in lighting instructions. You may bury the low voltage cable where needed. Excess cable may be cut off.

### B. CONTROL UNIT PROGRAMMING

#### Dusk-Dawn mode Programming:

In this mode your lights will turn on and will turn off at dawn every day.

1. To set the control unit in "dusk-dawn" mode, simply plug it into a power outlet. The red indicator light (Fig. 2) should begin to flash slowly within 30 seconds of power being applied.

#### Timer programming (1-9 hour):

In this mode, your lights will remain on for 1-9 hours after dark.

1. In the daylight, Plug the control unit into a power outlet. The red indicator light (Fig. #2) will be lit. If it isn't lit, move the control unit to a location where it can be exposed to more light.

2. Cover the programming sensor (Fig. #2) with an opaque object such as a coin. Every time the sensor is covered, the control unit is programmed to turn lights on for one more hour after dark. The sensor can be programmed for one to nine hours.

3. Complete the programming within 30 seconds of plugging in the control unit.

#### Manual Timer Mode:

This mode is useful if you can only mount the control unit where there is no exposure to ambient light- eg. In a garage or shed. In this mode, the lights will turn on at the same time every day and will remain on for 6 hours.

**Note:** In order to program the control unit, there must be a light source (eg. Flashlight). When programming is complete, remove the light source.

1. Plug the control unit into a power outlet. The red indicator light (Fig. #2) should be lit. If it isn't lit, move the control unit to a location where it can be exposed to more light.

2. Cover the programming sensor (Fig. #2) with an opaque object such as a coin. Move the object over the sensor 10 times to set this mode.

3. Complete the programming within 30 seconds of plugging in the control unit.

#### Always on Mode:

This mode is useful if you want your lights to remain on all the time.

1. Plug the control unit into a power outlet. The red indicator light (Fig. #2) should be lit. If it isn't lit, move the control unit to a location where it can be exposed to more light.

2. Cover the programming sensor with (Fig. #2) with an opaque object such as a coin. Move the object over the sensor 11 times to set this mode.

3. Complete the programming within 30 seconds of plugging in the control unit.

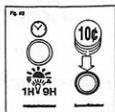
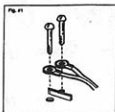
#### How to Read the programming:

1. Dusk-dawn mode - red indicator light flashes on (2 seconds) and off (2 seconds) continuously.

2. 1-9 hour mode - red indicator light flashes from 1 to 9 times depending on number of hours programmed. There will be a 4 second pause between the sequence of flashes.

3. Manual timer mode - red indicator light flashes on and off rapidly.

4. Always on mode - red indicator light is always on - does not flash.



### C. Other Operation Tips:

1. You can add more lights to your lighting set, the quantity being dependent on the wattage of your control unit.

Control unit	4 watt	7 watt	11 watt
Wattage	Bulbs	Bulbs	Bulbs
60 watt	15	8	5
88 watt	22	12	8

Do not overload your transformer.

Lamp brightness of the lighting heads will decrease as you increase the distance away from the control unit and as you increase number of lamps being operated on the system.

2. Your Moonrays control unit is equipped with a resettable circuit breaker to protect against electrical overload. Pressing the circuit breaker button in will reset the control unit and if the cause of the overload has been corrected, your unit will resume normal operation.

3. Your Moonrays Low Voltage Control Unit "Auto" timer function features an approximately 1-2 minute time delay. This feature prevents the unintentional switching, on or off, to the lights due to brief changes in outside light conditions (e.g. headlights) that may affect the photocell.

**CAUTION:** Only assemble cable onto terminals with power OFF.

**Note:** Before finishing assembly, follow the test procedure below.

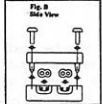
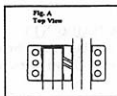
Plug the control unit into the outdoor receptacle at this point to ensure that your light comes on. The control unit is designed to activate the lights for a few minutes when power is initially supplied. If your light does not come on, check to ensure that the bulb is properly installed. If so, unplug the control unit, unlock the cam and repeat the cable hook-up. Check to see if the terminals are bent. If so, straighten them. Plug the control unit into the receptacle again and if the light remains off, refer to the Trouble Shooting Guide.

### CABLE EXTENSION CONNECTOR

1. Insert the low voltage cable lead from the end of the existing cable into one of the channels in the bottom connector and the newly added length of cable into the other channel (Fig. #A).

2. Firmly press each cable directly over the spiked terminals inside the channel.

3. Align the four pins of the top connector with the four holes of bottom connector. Push together and firmly hold parts while screwing the two pieces together. (Fig. #B).



### Trouble Shooting Guide

Problem	Action
1. No display from control unit No lights operating	Confirm that control unit is plugged into a receptacle with power. Press lower Program mode button to ensure that control unit is not off. If no response after these steps, return unit for service.
2. Control Unit operation normal. Some lights not operating (at least one light is OK)	Check for burned out light bulb connection at lens base. If low voltage cable is in multiple sections, check cable connectors for poor connection. Check lighting and wiring by removing cam and wire. Look for bent terminals in lens base and straighten.
3. Control Unit operation normal. No lights operating.	Check for poor low voltage cable connections on rear of control unit. Check items listed in #2. Check to ensure that the black cams have been turned 180°.
4. Control Unit operation abnormal. Lights OK except for timing	Review instruction manual to confirm operation is malfunctioning. Confirm that sensor is not being influenced by stray light or shielded from natural light. Confirm that sensor is dry and has not been subjected to abnormal amounts of moisture (e.g. sprinklers).