

# NEBO®

NEB-LSP-0018 / NEB-LSP-0019

## 60 / 120 WATT LOW VOLTAGE TRANSFORMER

### TECHNICAL SPECIFICATIONS:

12V AC ~ 60W  
15V AC ~ 120W

### CUSTOMER SERVICE:

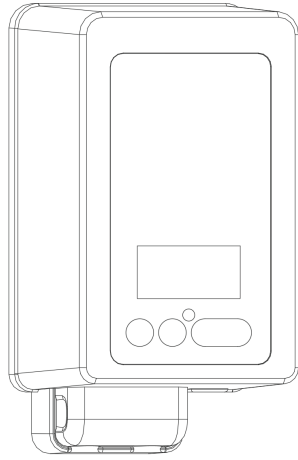
If you have any questions or comments about this or other NEBO products, call us at: 800-255-6061

### WARNING!

Read all instructions and safety warnings. Failure to follow the instructions and warnings may result in fire, electrical shock or serious injury.

### WARNING!

The warranty provided by NEBO will not be honored and will be considered void if the product has been disassembled, altered/modified without prior authorization of NEBO.

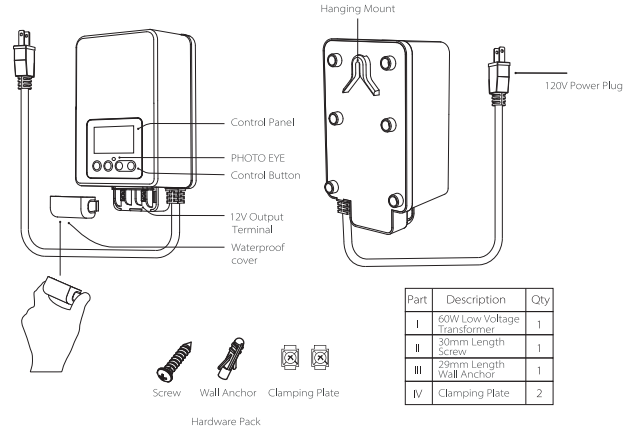


### WARNING: RISK OF FIRE OR ELECTRICAL SHOCK

- Transformer IS NOT SUITABLE FOR USE with submersible luminaires and pumps.
- Use ONLY with 12~15 volt low voltage outdoor landscape lighting products.
- Maximum wattage of low voltage products connected to transformer cannot exceed 60 watts on the 60w transformer or 120 watts on the 120w transformer.
- Mount transformer at least 10 feet (3 m) from pool or spa.
- Mount transformer vertically at least 12 inches (30 cm) above ground. Do not lay on the ground.
- Plug transformer directly into an outdoor GFCI outlet with a weatherproof cover.
- Keep a minimum of 10 feet (3 m) of wire between the transformer and the first fixture.
- Do not repair or tamper with cord or plug.
- Do not submerge transformer.
- Do not connect two or more transformers in parallel.
- Do not use with dimmer devices/controls.
- Transformer and fixtures must be installed in compliance with national and all local electrical codes and ordinances.
- Use only CSA or UL approved low-voltage cable.
- Failure to use a minimum of 16 Gauge cable or incorrect installation may result in fire, electrical shock or serious injury.
- Using larger cable (12G, 14G) will ensure maximum light output.

### OPERATING INSTRUCTIONS

#### INSPECT CONTENTS OF THE BOX TO ENSURE ALL PARTS ARE INCLUDED AND UNDAMAGED

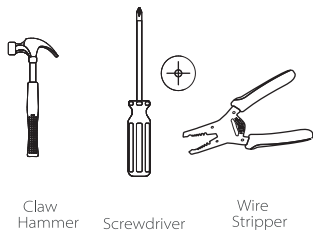


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## Getting Started

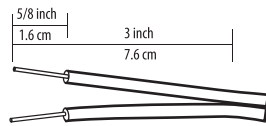
1. Install the transformer
2. Layout the fixtures
3. Connect the fixtures to the cable by using cable connectors

### TOOLS REQUIRED



### PREPARE THE CABLE

Carefully split one end of cable at about 3 inches (7.6 cm). DO NOT expose any of the copper wire when splitting. Then strip 5/8 inch (1.6 cm) of rubber insulation from the end. Also, refer to strip length guide on the transformer.

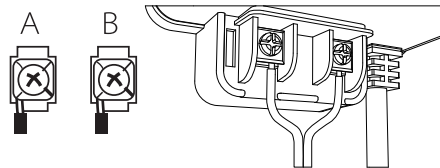


### CONNECT CABLE TO TRANSFORMER

Lay transformer on a flat, stable surface and insert the stripped end of one wire under terminal clamping plate A. Then tighten the screw. Repeat this procedure for clamping plate B.

#### NOTE:

Make sure there is no wire insulation under the clamping plate, and firmly tighten the terminal screws.



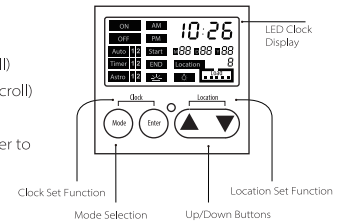
**NOTE:** The position of the photo eye can influence at what light level the transformer will turn on in the AUTO. Placing the sensor in areas receiving less sunlight at dusk (east side of house, behind trees and bushes, under a deck) will have the transformer come on earlier in the evening. The location, position and orientation of the photo eye can be adjusted until the transformer turns on at the desired light level.

Once all fixtures are in place and you are satisfied with their locations, cable may be covered with mulch or buried up to 6 in (15 cm) deep. Leave about 12 in (30 cm) of cable after the last fixture.

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### TRANSFORMER OPERATION

- Mode Selection Button
- Setting Confirmed Button
- Up Selecting Button (Hold Down for Quick Scroll)
- Down Selecting Button (Hold Down for Quick Scroll)
- "Mode + Enter" = Clock": local clock time set buttons;
- "Up + Down" = Location": City code set buttons (Refer to the cities code sheet)



### QUICK SETUP OPTION

- 1: CLOCK TIME SETTING (Press "Mode + Enter" = Clock) : Set your local time by press and with (Enter) button;
- 2: ASTRO TIMER SETTING (Up + Down = Location) Press down "Up + Down" button, the "Location" icon flash, press "Mode" or button to choose your city code (refer to attached city code sheet) and press (Enter) for confirm the set. e.g. you are in New York South, so choose location code 56.
- 3: Default working mode is Lights will be on at your local sunset time, and turn off at 11:00pm; Turn on at 3:00am again, switch off when sunrise. Press "Mode" button for 3 sec, the "Location" icon will flash 3 times which means default mode set.

### INTRODUCTION OF KEY FEATURES FOR THIS TRANSFORMER

- 1: This transformer is built with automatic DST; No need to set the clock from time to time.
- 2: Providing precision dusk to dawn working periods in your location.
- 3: The Astro timer function allows the transformer to be installed indoors. This feature will extend the lifespan of the transformer that would otherwise be installed outdoors exposed to harsh weather/climates.
- 4: This transformer has ON/OFF/AUTO Mode set, which helps checking lights/line/photo sensor's working and connection.
- 5: This transformer provides an energy savings setting that will reduce energy waste. Please refer to details below.

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## MODES SETTING IN DETAIL

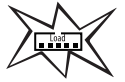
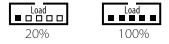
- Press **Mode** button to select working mode, Always press **Enter** to confirm the mode set.
- ON: Lights will turn on. (Manual Setting)
  - OFF: Lights will turn off. (Manual Setting)
  - Auto : Photo sensor mode (lights will turn on/off at 2 separate times within one 24 hour period for best Energy Savings)
- A): Mode Auto 1: "Auto 1" icon blinking, press enter to confirm the ON/START by automatic sensor. The lights will now turn ON by automatic sensor as the default.  
Now set the END time. The END icon will now blink, press **▲** or **▼** to choose the clock "(--:--)" and with the **End** icon blinking, press (Enter) to confirm the end time at Dawn with sensor. You may also set a different (END) time. When END icon is blinking, you may press **▲** or **▼** button to set the OFF time at a different hour/minute to enable shut down.
- B): Mode Auto2: After "Auto1" set, it will proceed to optional "Auto2" period set. The "Auto2" icon will blink after Auto 1 first period time is set. There is a 2nd ON time option; The "Auto2" and "START" icon will begin to blink and you can then choose AM00:00-AM05:59 (DST AM01:00-AM06:59) to turn on the lights a second time within a 24 hour period. The END time for Auto2 is by automatic sensor at Dawn.
- NOTE:** When Auto1 end time is set at Dawn by sensor, the Auto 2 will only show "OFF". This means there will not be a 2nd run time within a 24 hour period. The "Auto2" icon will not show on the LCD. There is a 30 second delay from when the photo eye determines darkness and the transformer turns on.
- 4: Timer Mode; (set ON and OFF at any time for testing and temporary use)
- A): Timer 1, press "mode", then press **▲** or **▼** button to choose Timer1. The "Time1" and "Start" icon will start to blink and is ready to set the ON time by pressing **▲** or **▼** to your desired time and then press (Enter) button to confirm. With the "End" icon blinking, the OFF time is ready to be set by pressing **▲** or **▼** and then press (Enter) button to confirm shut off time. You can set any time to come ON and OFF between 00:00 -23:59 (utilizing the 24-Hour Time Setting).  
After Timer1 is set, the transformer will give you the option of setting Timer2.
- B): Timer2, the "Timer 2" and "Start" icon will start to blink and is ready to set in the 2nd ON time by pressing **▲** or **▼** to your desired time and then press (Enter) button to confirm. With the "End" icon blinking, the 2nd OFF time is ready to be set by pressing **▲** or **▼** and then press (Enter) button to confirm the 2nd shut off time. You can set any time to come ON and OFF between 00:00 -23:59 (utilizing the 24-Hour Time Setting).
- NOTE:** When you do not want to set "Timer 2", please finish setting "Timer 1" first and then press **▲** or **▼** until the screen shows "OFF", and press "enter" to finish setting. When there is the same set time period in Timer1 and Timer2, this setting will be skipped over by the system.
- 5: Astro = Astronomic timer: Automatically sets the sunset and sunrise timing by selecting your location/city code. The Astro1/2 Option provides the Astronomic timer to be set with two working time periods which allows transformer to be installed indoors or in a lack or no sunlight environment.
- A) Astro1, press "mode", then press **▲** or **▼** button to choose "Astro1". The "Astro 1"/"Start"/**End** and "+00" icons will start to blink, press **▲** or **▼** to choose +/-10, +/-20, +/-30, +/-40, +/-50 minutes before or later than the local sunset time to TURN ON the lights. Press "Enter" button to confirm the selection. The "End" **End** and "+/- 00" icons will start to blink. To Turn OFF at your local sunrise time, press "Enter" to confirm the selection. Options for "End" time: when "End" icon starts to blink you can choose PM8:00-AM00:59 (DST PM9:00 - AM1:59) to TURN OFF.
- B) Astro2, when "Astro2 and "Start" icons start to blink you can choose the 2nd period ON time AM00:00-AM05:59 (DST AM01:00-AM06:59)

**NOTE:** When in Astro1 time period, the "End" time is set at sunrise time and the Astro2 will show "OFF". This means it will not set in Astro2 mode. (press "Enter" to confirm the setting). When "End" **End** and "+00" icons start to blink, press **▲** or **▼** to choose +/- 10, +/- 20, +/- 30, +/-40, +/-50 minutes before or later than the local sunrise time to TURN OFF the light. Press "Enter" button to confirm the setting. Note: When the Astro2 can not be set, the "Astro2" icon does not show on the LCD.

## TRANSFORMER LOADING CONSUMPTION INDICATOR

### This transformer has a built in LOAD CAPACITY INDICATOR BAR;

- When the **Load** LED is ON, it means that the transformer is working.
- ICON at right will display current load status. 1 Bar will indicate 20% of the transformer's wattage has been used, 5 bars will indicate 100% of the transformer's wattage has been used. When the transformer has been overloaded the icon bar will start to "blink". If the transformer reaches 120% of total wattage then the transformer output will turn off. The LOAD CAPACITY INDICATOR BAR will continue to "blink" until wattage load has been reduced by removing one or more number of lights or until any fault corrections have been made from the lighting/cable installation. Once adjustments have been made press any button to turn on the transformer and then reset your modes.



## TRANSFORMER AND WIRE

### 12 VOLT TAP Cable Length

Total Fixture Wattage	0-50 feet	51-100 feet	101-150 feet
0-60 Watts	16 AWG	16 AWG	14 AWG
61-120 Watts	16 AWG	14 AWG	12 AWG
121-180 Watts	14 AWG	12 AWG	Not recommended
181-240 Watts	14 AWG	12 AWG	Not recommended
241-300 Watts	12 AWG	Not recommended	Not recommended
600W =(2x300) Watts	12 AWG	Not recommended	Not recommended
900W =(3x300) Watts	12 AWG	Not recommended	Not recommended

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## CITIES CODE SHEET FOR USA AND CANADA

Code	Area/City	Code	Area/City	Code	Area/City	Code	Area/City
01	Northern Alabama	23	Southern Illinois	45	Southern Missouri	67	Western Pennsylvania
02	Southern Alabama	24	Indiana Eastern Time Zone	46	Eastern Montana	68	Rhode Island
03	Alaska	25	Southern Indiana Central Time Zone	47	Western Montana	69	South Carolina
04	Arizona (No DST)	26	Eastern Iowa	48	Eastern Nebraska	70	Eastern South Dakota
05	Northern Arkansas	27	Western Iowa	49	Western Nebraska	71	Western South Dakota
06	Southern Arkansas	28	Eastern Kansas	50	Northern Nevada	72	Western Tennessee
07	Central California	29	Western Kansas	51	Southern Nevada	73	Eastern Tennessee
08	Northern California	30	Eastern Kentucky	52	New Hampshire	74	Eastern Texas
09	Southern California	31	Western Kentucky	53	New Jersey	75	North Texas
10	Northern Colorado	32	Northern Louisiana	54	Northern New Mexico	76	Southern Texas
11	Southern Colorado	33	Southern Louisiana	55	Southern New Mexico	77	Western Texas
12	Connecticut	34	Maine	56	Southern New York	78	Utah
13	Delaware	35	Eastern Maryland	57	Upstate New York	79	Vermont
14	Northern Florida	36	Western Maryland	58	Eastern North Carolina	80	Eastern Virginia
15	Southern Florida	37	Massachusetts	59	Western North Carolina	81	Western Virginia
16	Western Florida	38	Northern Michigan	60	Eastern North Dakota	82	Washington
17	Northern Georgia	39	Southern Michigan	61	Western North Dakota	83	Western Virginia
18	Southern Georgia	40	Northern Minnesota	62	Ohio	84	Wisconsin
19	Hawaii	41	Southern Minnesota	63	Oklahoma	85	Wyoming
20	Northern Idaho	42	Northern Mississippi	64	Eastern Oregon		
21	Southern Idaho	43	Southern Mississippi	65	Western Oregon		
22	Northern Illinois	44	Northern Missouri	66	Eastern Pennsylvania		

Canada		Canada		Canada	
101	Whitehorse, Yukon	102	Montréal, Quebec	103	Quebec
105	Ottawa, Ontario	106	Toronto	107	Barrie, Ontario
109	North Sydney Nova Scotia	110	Halifax, Nova Scotia	111	Calgary
113	Vancouver	114	Surrey	115	Winnipeg
117	Moncton	118	Saint John	119	St. John's
				120	Yellowknife

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**CAUTION: FOR USE WITH 12-15 VOLT LOW VOLTAGE OUTDOOR LANDSCAPE LIGHTING SYSTEM ONLY.**

**PRECAUCIÓN: SEULEMENT POUR UNE UTILISATION AVEC DES APPAREILS D'ÉCLAIRAGE DE PAYSAGE À BASSE TENSION AVEC UNE PUISSANCE NOMINALE MAXIMALE DE 12-15 VOLTS, CLASSE 2 SEULEMENT.**

**WARNING: NOT FOR USE WITH RECEPTACLES THAT ARE WEATHERPROOF ONLY WHEN THE RECEPTACLE COVER IS CLOSED AND THE POWER UNIT IS NOT INSERTED.**  
**ADVERTENCIA: PAS POUR UNE UTILISATION AVEC DES RÉCIPENTS QUI SONT RÉSISTANT AUX INTEMPÉRIES QUE LORSQUE LE COUVERCLE**

