

INSTRUCTION MANUAL

SALLE

**SOLAR
ADAPTABLE
LED
LIGHTING
EQUIPMENT**

BY

J & S

TECHNOLOGIES

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SOLAR ADAPTABLE LED LIGHTING EQUIPMENT

CONGRATULATIONS on purchasing the finest solar lighting system on the market!

Designed and manufactured by sign professionals that actually work in the field and have intimate knowledge of the needs and conditions that sign and lighting installers, service technicians and customers encounter.

We strive to design and build the longest lasting and finest solar power system possible.

SALLE units are extremely durable and very reliable, built with industry-best components.

All circuits are fuse protected, relays are designed to activate for one million cycles and there is double redundancy on all outputs.

All power circuits have been thermally tested at over twice their rated capacity.

The time clock has a lithium battery that provides a three year backup to insure settings are retained during routine maintenance operations.

SALLE incorporates two complete solar charging and battery systems to allow for any stress that may be imposed on the system; this allows the battery banks time to rest between charge and discharge cycles as the system switches to the alternate battery bank. This rest period will lengthen the service life of the batteries.

All SALLE units are built to be flexible:

- Operate at 12V or 24V
- Stand alone or Hybrid (allows for 120V backup)
- Can operate with built in photo cell - dusk to dawn
- Can operate with built in time clock (up to 17 on/off cycles per week)
- Can operate with combination of photo cell and time clock

Every SALLE unit includes all these features

Every SALLE unit is assembled in our plant and tested thoroughly to insure all features work properly and limit any difficulties that could occur in the field during the installation process.

We have included trouble shooting features to easily isolate any issue that may be encountered.

These features include override switches to isolate key functions and determine any issue so it can be quickly and easily corrected.

Other solar powered products on the market today use the solar panels as their light sensing device to activate the LED modules in the sign or fixture being powered by those panels.

The problem with this procedure is that solar panels are so sensitive to ambient light sources that even a bright moon will keep the system from activating the LED modules.

Other manufacturers may find this acceptable; we don't believe our customers do.

We incorporate a DC photo sensor and a 7-day digital time clock as standard features – all connected and ready to program to your customer's needs.

We include additional fuses, all cabling and connectors, calculate your energy demands and supply the appropriate battery banks and solar panels.

Solar power varies from location to location.

We use three data bases of solar irradiance to determine the average solar level for your location.

Sometimes additional panels are required to collect enough energy in areas where clouds, fog or other sunlight obstructions occur. All SALLE units are designed to accommodate additional solar panels to overcome these obstacles.

We keep all SALLE unit parts in stock so we can ship immediately to your location.

Your SALLE unit was built in the USA by USA workers to perform to your highest standards.

We continue to strive to incorporate new technology in our SALLE units, and will contact previous users whenever superior components become available in the future.

The batteries in your SALLE unit are the only component that requires maintenance and the only item that will eventually need to be replaced. End of service life for batteries is usually reached when they lose 50 percent of their rated capacity. Typically this is three to five years after being put into service.

Battery technology is advancing quickly and if a better, more reliable system becomes available, we will evaluate it.

If it meets our high standards, we will incorporate it in our SALLE units.

Until such time we will use our proven power sources that have an outstanding track record.

Our philosophy is that every component must perform in the field – not just on the sales floor.

Our units are field proven to be the best, most reliable and an industry leader with the longest service life.

Our product is the best – it will continue to operate long after our competitors' are in the recycling bin.

We offer 24/7 assistance for all questions, concerns or difficulties you may encounter with any aspect of your SALLE experience.

Again – congratulations on the purchase of your SALLE system!

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SOLAR ADAPTABLE LED LIGHTING EQUIPMENT

This Quick Start Guide has been provided to inform the user about how to open, unpack, inspect, assemble, test and put into operation this SALLE unit.

Please read **ALL OF THIS INFORMATION FIRST** and then proceed in order to have a problem free experience with solar powered lighting – the SALLE WAY.

RECEIVING & UNPACKING YOUR UNIT

1. Examine box for damage by shipper and note any exterior issues
2. Open the crate; you should see:
 - Solar Panels (may be multiple panels)
 - Batteries
 - Master Control Unit (MCU) with time clock, photocell and cable assemblies
3. Remove all packing materials
4. Remove battery cable harness and solar panel extension cable
5. Carefully remove the SALLE Main Control Unit (MCU) box
6. Familiarize yourself with these components
 - a. Master Control Unit (MCU) cabinet
 - b. Remote Control Unit (RCU) box
 - c. Battery harness
 - d. Solar panel extension cables
7. Check to make sure no damage occurred during shipping
If no defects are noted you may begin the installation procedure

INSTALLING YOUR SALLE SYSTEM

8. Determine location for the batteries and mount securely in place to deter theft
REMEMBER – THEY ARE VERY HEAVY!
9. Dielectric grease has been applied to terminals and connectors
10. Mount the Master Control Unit cabinet in desired location.
11. **Connect batteries to MCU.** The battery connector only pushes together one way, do not force. (supplied)
Check seating of all battery fuses.
Spare fuses shipped inside MCU in clear plastic bag (only use supplied fuses).
NOTE: BATTERIES MUST BE CONNECTED TO MCU BEFORE PROCEEDING TO AVOID SEVERE DAMAGE TO OTHER COMPONENTS
12. Mount solar panels securely - making sure they have an unobstructed view of the Southern sky.
Support the solar panels properly to avoid stress from high winds
Adjust so that it is at a 64° angle.
This will capture the most energy from the sun on the shortest day of the year – December 21st.
13. Connect solar panels to MCU via steps below.
NOTE: ONLY CONNECT SOLAR PANELS TO MCU AFTER BATTERIES!

Connect Solar Panel Leads to Jumpers (*if required*) – OBSERVE POLARITY
Connect Jumpers to Combiners (*if required – depends on size of system*) – OBSERVE POLARITY
Connect Combiners to Solar Panel Extension Cable (*if required – depends on panel location*)
OBSERVE POLARITY
Connect Extension Cable to MCU
14. Connect sign feeds from MCU to LED load.
NOTE – NO POWER SUPPLIES ARE USED WHEN RUNNING ON SOLAR POWER
Do not overload any output - 5 AMPS MAX per output!

YOU MUST COMPLETE STEP 14 BEFORE PROCEEDING. THIS CONNECTION MUST BE MADE BEFORE ANY OTHER CONNECTIONS OR SEVERE DAMAGE MAY OCCUR.
15. Open the SALLE Master Control Unit door and observe the A & B Charge controllers.
The middle LED indicator should be illuminated GREEN on both Controllers.
These are battery condition indicators.
If they do not light GREEN – see Trouble Shooting Guide Step I
16. Observe the A & B solar Charge Controllers inside the SALLE Master Control Unit.
If there is any sunlight at all, the first LED indicator will illuminate green.
You may notice the battery indicator of A and/or B may begin to flash; this is normal and indicates that the batteries are receiving a charge
17. When all the above steps are completed **AND NOT BEFORE**, you are ready to activate, test and program the SALLE unit.

ACTIVATING YOUR SALLE UNIT

18. Check to make sure the load outputs on Solar Chargers A and B, it should be green. If not, energize the outputs by depressing the SET button ONCE on each Charge Controller.

(The SET button is located beside the LED window)

You should observe the third LED indicator on each Charge Controller illuminating GREEN

You must note a “16” displayed in the window (it will disappear after a few seconds).

This indicates the presence of voltage available for use by the SALLE Control circuit board

If you do not see third LED lit AND “16” in display window – see Trouble Shooting Guide – Step I

Your SALLE unit has three operating modes that you may choose from:

A. DUSK TO DAWN – no need to set or program the time clock

Locate time clock bypass switch on lower right corner of circuit board inside MCU cabinet

Move to full UP position

SALLE unit will now be controlled completely by the built in photo cell control

B. TIME CLOCK OPERATION ONLY

Set time clock to current time, program on/off cycles, put time clock in AUTO mode

Locate photo cell bypass switch on lower left corner of circuit board inside MCU cabinet

Move to full UP position

SALLE unit will now be controlled completely by the time clock

For time clock programming and operation – see Step 19

C. COMBINATION CONTROL BY PHOTO CELL AND TIME CLOCK

SALLE unit will turn on/off by the time clock settings, but sign will only illuminate when the photo cell determines it is dark enough.

PROGRAMMING THE CONTROL OF YOUR SALLE UNIT

19. Locate our tamper proof time clock on the door of the SALLE Master Control Unit.

If correct day and time are not displayed, you will need to set it as follows:

Note: Time Clock display is in Military Time (14:00 = 2:00 p.m.)

Program Time Clock

- a. Note “lock” symbol – lower left corner of display window
- b. Press and release “C/R” button QUICKLY FOUR TIMES– “lock” will disappear
- c. Press and release “D+” button to set current day of the week
Unit defaults to Monday; continue pressing “D+” to move through day choices
- d. Press and release “H+” button to set current time and adjust hours
- e. Press and release “M+” button to adjust minutes

PLEASE NOTE – IF AT ANYTIME DURING THE ABOVE PROCESS YOU PAUSE FOR MORE THAN 30 SECONDS, THE CLOCK WILL RETURN TO THE “LOCKED” MODE. Follow steps 19. “b” above to exit the “Lock” mode.

20. Program Sign Operation

To begin this process, press the “P” button to put in Program Mode and indicate “ON” for the first Event. Note – this Time Clock can accommodate up to 17 on/off events per week

- a. Press and release “D+” button to determine day(s) of operation
If you want the same ON time every day – skip to “b”
If you want different times for different days of the week, press and release “D+” button to progress to the day you want to set, then follow ON and OFF time steps in “b” below
- b. Press and release “H+” and “M+” buttons to set “ON” time.
- c. Press and release “P” (Program) button to indicate “OFF” for the first Event.
Follow steps in “b” and “c” above to select day(s) and time(s).
- d. Repeat these programming steps for each additional on/off Event as needed.
To exit the Programming Mode – press the “CLOCK” button; current time and “Auto” mode will display.

TO REVIEW YOUR PROGRAMMED INFORMATION – UNLOCK CLOCK BY FOLLOWING STEP 19.b ABOVE. Then press the Program, Hour and Minute buttons to review current settings.

TESTING YOUR SALLE UNIT

Now that you've programmed the unit to operate automatically, you will want to test all the functions to insure it is operating properly.

1. Locate the "C/R" button and press it four times to unlock the clock
2. Locate the "MANUAL" button on the time clock and press it
3. Observe display window – look below the time display
Press the "MANUAL" button several times to familiarize yourself with this display
You will see either "Auto", a light bulb on the left, or a light bulb with an "x" on the right
The display of the light bulb icon indicates the sign should be "ON"
The display with the light bulb with an "x" icon indicates the sign should be "OFF"
4. Using the 'MANUAL" button, cycle through to the "ON" position (light bulb)
Observe the display to the left of the 'MANUAL" button – it should be illuminated RED.
5. Check the LED's in your sign cabinet – they should be lit
If sign is lit – continue with next steps; if it is not lit, proceed to Trouble Shooting Guide Step I
6. On the Remote Control Unit, below the programming buttons, are indicator lights for BATTERY A, BATTERY B and TROUBLE/CALL FOR SERVICE
One of the BATTERY lights should be illuminated, indicating which battery bank is energizing the sign
7. In the Master Control Unit cabinet – look at the circuit board with four cubed relays
Two of the four relays should have ORANGE indicators displayed
This means everything is operating properly
8. **Return to automatic operation by pressing the 'MANUAL" button until "AUTO" is displayed**

**YOU HAVE COMPLETED THE TESTING PROCEDURE
YOUR SIGN SHOULD OPERATE PER YOUR PROGRAMMED SCHEDULE**

**THIS COMPLETES THE
SETUP AND ACTIVATION
OF YOUR SALLE UNIT**

TROUBLE SHOOTING GUIDE

With Time Clock in MANUAL mode:

STEP 1

Open door on Master Control Unit (MCU)

Observe Charge Controllers A and B

Note middle LED indicator

- Green – all is good – proceed to Step 2
- Red – low battery
- No indicator lights
 - a. Check fuses
 - b. Check connectors for proper seating

After resolving fuse or cord connector issue

Check the output led (third LED)

If not green, press the “SET” button to energize output circuit.

STEP 2

To confirm Charge Controller Outputs are energized, observe the indicator lights on them.

Third LED indicator should be illuminated GREEN and LED window must display “16”

If it IS illuminated – proceed to Step 3

If is NOT illuminated – press the “SET” button – this should activate the GREEN light

Indicator light will not illuminate if the Charge Controller (middle LED) indicator is not GREEN

Note – the Third LED (LOAD) will turn off when battery bank voltage drops too low.

This is done to protect the battery from damage.

LOAD will automatically reactivate when battery has recharged to 12.5V or more

STEP 3

Locate the two toggle switches on the circuit board – lower left and lower right corners.
Put both in the full UP position – this is the BYPASS MODE

If sign DOES NOT light – you have a bad fuse. Replace with proper size.

Spare fuses are located in Zip Lock bag inside MCU

VERY IMPORTANT: Only use provided or duplicate fuses.

Use of wrong fuse can cause severe damage to any or all components of SALLE

If sign DOES light – proceed with following steps

Put LEFT toggle switch in DOWN position; this returns normal function to the photo cell

If sign lights TURN OFF – check for damaged or broken conductor to photo cell

If none, replace photo cell

If sign STAYS LIT – leave LEFT toggle switch in DOWN position

Put RIGHT toggle switch in DOWN position; this returns normal function to the time clock

If sign lights TURN OFF – check for damaged or broken conductor to time clock or blown fuse

If still OFF – return to Testing section of this Guide, Step 4, and repeat procedure

If sign STAYS LIT – return to Testing section of this Guide, Step 1, and repeat entire procedure

Note: Time Clock has a lithium battery that will retain time and schedules for up to three years after power is disconnected.

**IF FOLLOWING THE ABOVE STEPS
DOES NOT RESOLVE YOUR ISSUE
PLEASE CONTACT US FOR
ADDITIONAL SUPPORT**

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LOSS OF BATTERY POWER OR LOW BATTERY

These conditions may be caused by insufficient charging – lack of sunlight due to too many consecutive cloudy days, debris on one or more of the solar panels, a broken conductor or a damaged Combiner.

Any physical damage should be apparent.

Too little sunlight can be adjusted for with additional solar panels.

Bad or damaged batteries, or batteries that have reached their end of service life will also cause failure of your sign.

Many factors can effect battery life – but once a battery fails, IT MUST BE REPLACED.

IF THERE ARE MULTIPLE BATTERIES IN THE BATTERY ARRAY – ALL BATTERIES MUST BE REPLACED WITH SAME SIZE (amp hour) BATTERIES.

MIXING OR CHANGING BATTERY SIZES CAN LEAD TO DAMAGE AND POSSIBLY FIRE

REPLACE THE ENTIRE SET OF BATTERIES – NOT INDIVIDUAL BATTERIES

SALLE

SOLAR ADAPTABLE LED LIGHTING EQUIPMENT

WARRANTY

This warranty extends only to the original user of the equipment and is limited to the purchase price of each part. J & S Technologies, Inc. and its affiliated companies warrant this equipment against defects in materials or workmanship as follows:

PARTS:

Battery(s):

Sealed Lead Acid batteries will be warranted for a period of two years from date of purchase against failure to hold and maintain an adequate charge (80% of rated capacity).

Lithium Iron Phosphate batteries will be warranted for a period of five years from date of purchase.

This does not include physical damage due to poor installation, mishandling or dropping of battery(s), or charging these items with any other system than was supplied with the original equipment, unless authorized by J & S Technologies, Inc.

Any person or property that is defaced, destroyed, or harmed in any way due to the failure of these battery(s) or the fixture that contains the battery(s), (this includes failure to adequately attach or secure to a structure whose integrity is sufficient to support the weight or wind load of these units) is not covered in any form nor will liability be accepted by J & S Technologies, Inc.

Master Control Unit(s) and Solar Panels will be covered for parts and workmanship for a period of five years from date of purchase against failure due to normal intended use of this product. These units can only be used with J & S Technologies, Inc. products and components. Any damage to equipment or devices that are not specified as compatible with or designed for use with our product is not covered.

Additionally, Solar Panels will carry a 25 year Performance Guarantee of 80 percent of effective output.

J & S Technologies Inc. cannot be held liable for any damage to person(s), property or assets affected by use of this product. This warranty covers only products provided by J & S Technologies, Inc. and any misuse or alternative use of this product for applications other than the designed purpose is forbidden and all damages resulting from this use is not J & S Technologies, Inc. liability including, but not limited to, person(s), property(s) or other assets.

J & S Technologies, Inc. will replace defective items after the return and inspection of any or all defective parts.

J & S Technologies, Inc. reserves the right to refuse coverage, at our discretion, if this product is not used properly and the improper use leads to, or contributes to, the failure or damage of this unit or devices that were attached to this product.

J & S Technologies, Inc. will not be held liable for damage of any person(s), property or devices surrounding, attached to or arranged near our product, which includes above, below, or in close proximity of this product.

WARRANTY DOES NOT INCLUDE:

Installation of our units and associated devices.

Consumer instruction, physical setup or adjustment of any devices.

Damage due to lightning, electrical surges, battery leakage, fire, flood, or other acts of nature, accident, misuse, abuse, repair or alteration by other than authorized personnel

Damage to any sign components (LED's, wiring, etc.) not provided by J & S Technologies, Inc.

Damage due to shipping or handling and any damage resulting from improper handling.

Neglected maintenance.

This warranty only covers our products purchased, installed and operated inside the United States of America and does not apply in any form outside its boundaries.

LEGAL LIMITATIONS:

Repair or replacement provided under this warranty is your exclusive remedy.

J & S Technologies, Inc. shall not be held liable for any incidental or consequential damages for breach of any expressed or implied warranty on this product, nor for any incidental or consequential damages resulting from the use of, or inability to use, this product. Under no circumstance shall J & S Technologies, Inc. liability, if any, exceed the purchase price paid for the unit(s). J & S Technologies, Inc. reserves the right to refuse to honor the warranty if J & S Technologies, Inc. determines any of the exceptions have caused this unit to have performed improperly. This warranty shall be void if the control unit(s) components or supplied accessories have been altered or exchanged or otherwise been used in a manner not designed for or configured for use thereof. These units are patent pending devices; therefore they are deemed intellectual proprietary property and any use or copying of any design of their control or function can be deemed a violation of patent law and will be prosecuted to the full extent of the law.

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