

UGE-Solar Off-Grid Controller

OWNER'S MANUAL



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INTRODUCTION

Dear UGE-Fusion System Owner,

Congratulations on purchasing your UGE renewable energy solution. Welcome to our family.

Enclosed in this manual is information regarding installation, operation and maintenance of the controller. Please read through the manual in its entirety before installing and using your fusion system and controller. Under certain circumstances this information may not be fully comprehensive and additional instruction or information may be required in order to successfully and safely complete the installation.

These installation and maintenance instructions contain important information for the safe installation and maintenance of the UGE-solar off grid controller. Designed for use with the UGE-Fusion System the function of the controller is to regulate the voltage and current coming from your solar panels to your batteries.

The controller should only be installed by qualified personnel such as an employee of a UGE Partner or a certified electrician. Yearly maintenance checks should be performed by qualified personnel. The owner should retain a copy of this manual for reference and to give to future maintenance personnel.

This manual should be used in conjunction with turbine installation manual, and the UGE Electrical Supplement. These manuals can be found on the website of the tower and electronics suppliers respectively or can be provided by your UGE Partner.

We would like to hear from you with any questions or comments that you have. Please contact us during working hours (Monday-Friday 9:00am to 6:00 pm - US Eastern Time) at:

Telephone: +1 (917) 720-5685
Website: www.urbangreenenergy.com
Email: techsupport@urbangreenenergy.com

Sincerely,

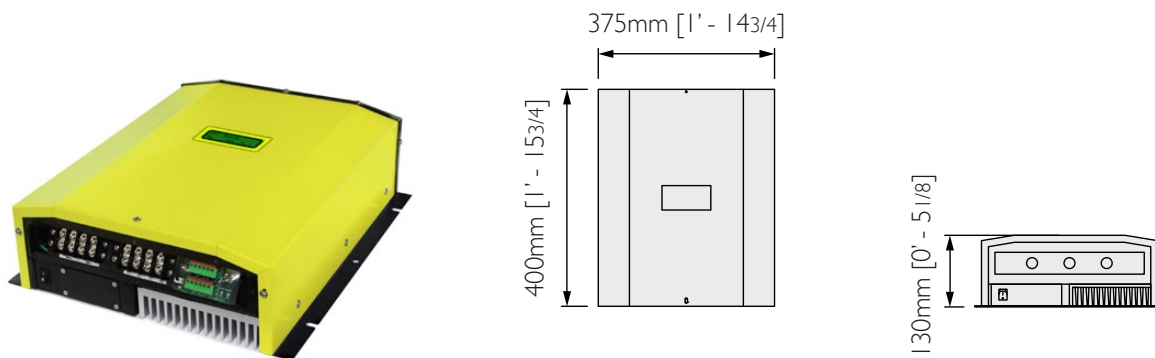


PARTS LIST

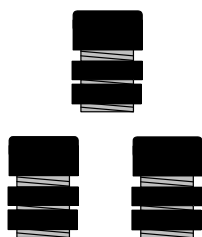
Check the Charge Controller and Parts

Please check all the parts based on the following instructions when receiving the package. Contact your local dealer if any part is missing.

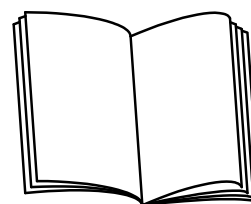
x1 Controller



x3 Cable Gland



x1 User Manual



SPECIFICATIONS

Output Voltage	48Vdc
Input Voltage Range (line to line voltage)	70V/150V
Charge Start/Stop Voltage (line to line voltage)	70V/60V
Rated Input Current	30A
Converter Efficiency/MPPT Efficiency.....	>85% / >90%
Standby Consumption	<3W
Battery Floating Charge Voltage.....	55.2Vdc \pm 1V
Battery Pulse Charge (charge 1 min per 10min)	57.6Vdc \pm 1V
Battery Low Shutdown	46Vdc \pm 1V
Battery Sleep Mode Voltage	40Vdc \pm 1V
Rated. Charge Current	62.5A
User Interface	LCD Status Indicators
Interface Enclosure.....	Use Terminal Block
Operating Temperature.....	-20°C/-4°F ~ 40°C/104°F
Dimension (L \times W \times H).....	400mm \times 375mm \times 130mm [1'-153/4" \times 1' - 143/4" \times 0' - 51/8"]
Weight	15kg /33.1lbs
Protection Class	Indoor use only

SAFETY INSTRUCTIONS

The charge controller shall be installed and operated in accordance with the instructions in this User Manual. The following conventions are used in this guide:











WARNING

Improper handling may cause a very hazardous situation resulting in personal injury or loss of life.















CAUTION

Warnings identify conditions or practices that could cause personal injury or damage to the unit.

-  1. *The PV panel is potentially dangerous when it is generating power. It is necessary to break the connection between the charge controller and the PV panel when installation or repair/ maintenance is conducted. Above all, do not connect the charge controller with the PV panel under the situation that the charge controller is not connected with the battery as doing so could cause severe damage to the charge controller.*
-  2. *This machine includes components carrying high voltage electricity that could potentially cause serious personal injury or even loss of life. The controller shall only be installed by a qualified professional such as a licensed Electrician or UGE distributor. The wiring of the controller shall meet the requirements of the NEC or the local electrical code.*
-  3. *Install Solar Controller in dry, well ventilated space. This charge controller adopts natural convection to disperse heat; the charge controller should not be put in the place close to the heat resource or under direct sunlight. Keep controller away from moisture.*
-  4. *Keep the charge controller and battery away from the flammable and/or conductive materials.*
-  5. *The weight of this controller is around 15kg / 33.1 lbs. Always treat the charge controller with caution during transportation and installation.*
-  6. *Do not leave any heavy item on the top of the controller.*
-  7. *If the controller behaves abnormally, disconnect the controller from the PV panels and battery. Do not restart the controller until you have contacted UGE technical support and the observed issue has been resolved.*
-  8. *Never operate the charge controller together with any PV panel or battery which exceed the rated specifications of the controller.*

SAFETY INSTRUCTIONS

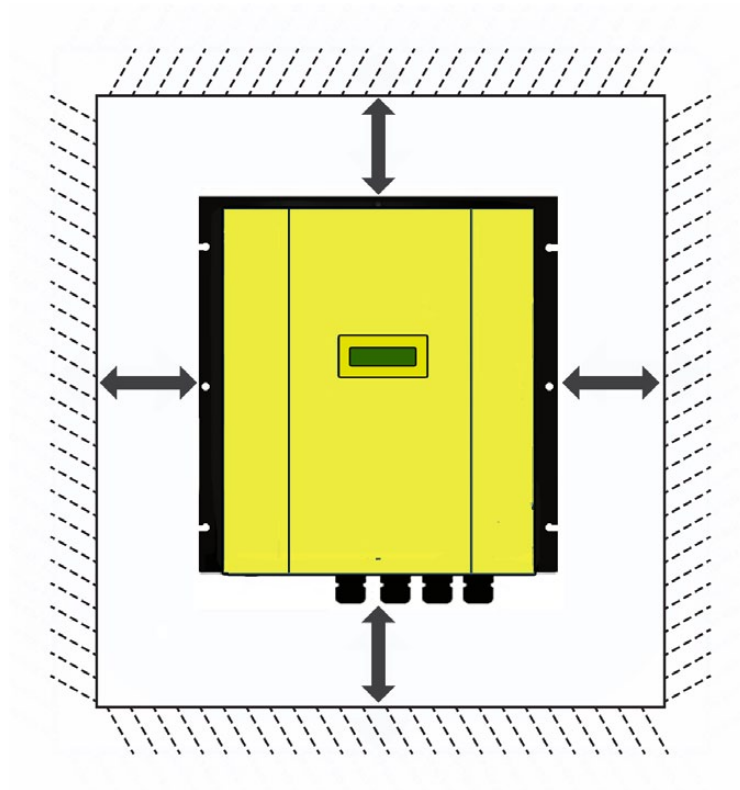
-  **9. Connecting the battery cables incorrectly, such as reverse polarity, will burn the fuse and may permanently damage the controller.**
-  **10. To reduce the chance of short-circuits, use insulated tools when installing or working with the controller.**
-  **11. Do not remove or bypass the grounding pin. Make sure the controller enclosure is grounded.**
-  **12. Please follow all the instructions and warning markings in this manual and on the controller.**
-  **13. Please check the appearance of controller before installation. Contact your sales representative if there are any obvious signs of damage.**
-  **14. The controller should be mounted vertically against a wall. Do not mount the controller at an angle (see page 9).**
-  **15. This controller should ONLY be installed and maintained by qualified professionals such as a certified electrician or UGE distributor.**
-  **16. Connect the wires by following the wiring instructions on page 13.**
-  **17. Follow the wiring guide provided in the wire connection diagram (see page 12).**
-  **18. When connecting the lead-acid battery, please pay great attention to the polarity.**
-  **19. Do not connect the controller to batteries that will operate in voltage ranges outside the battery voltage ranges defined on the specifications table, page 5.**
-  **20. Please keep this manual for your future reference.**

INSTALLATION

Step 1

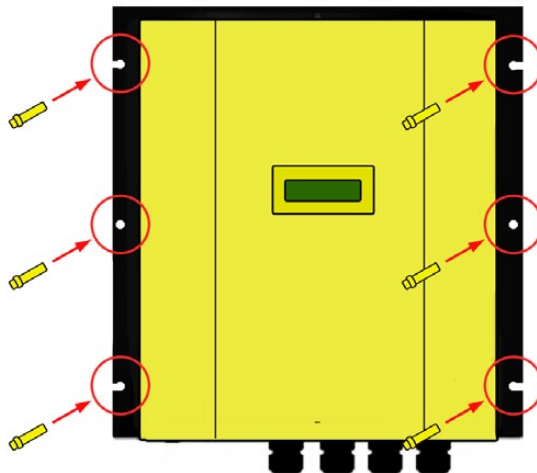
Check the installation location

- minimum 20cm (8") clear space around the machine is required for heat dissipation



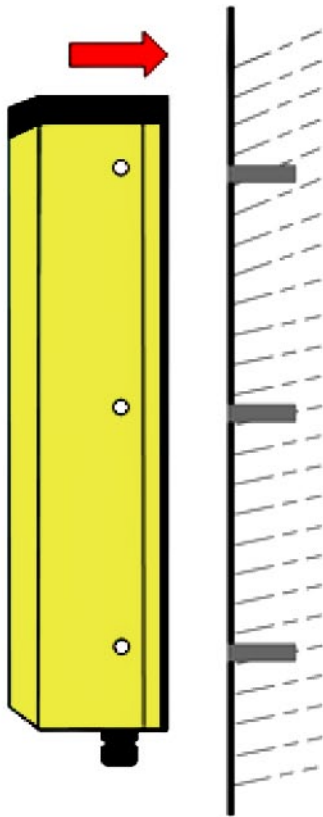
Step 2

Mount the charge controller



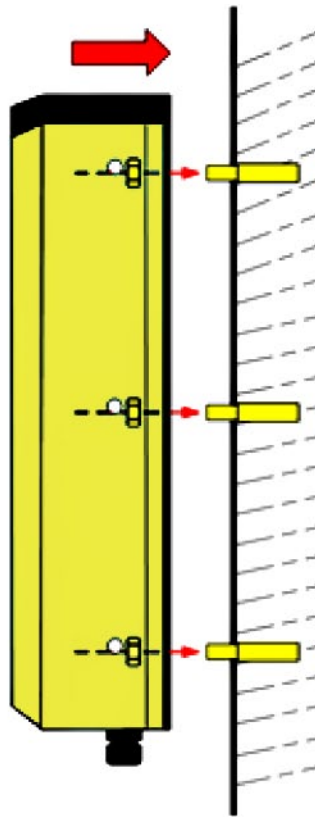
INSTALLATION

Mounting Guide



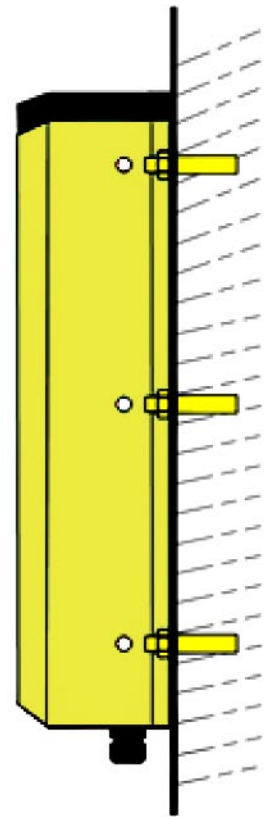
Step 2.1

Put the controller against the wall and mark the locations for drilling (6 holes).



Step 2.2

Drill 6 holes and place anchors into those holes.



Step 2.3

Fasten screws and secure the controller.

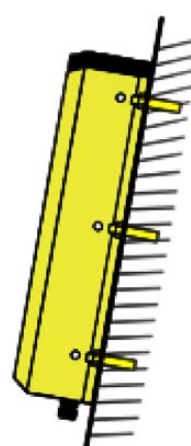


CAUTION

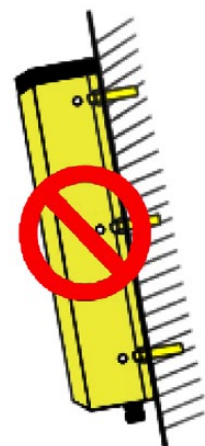
The mounting method in **C** is prohibited.



A



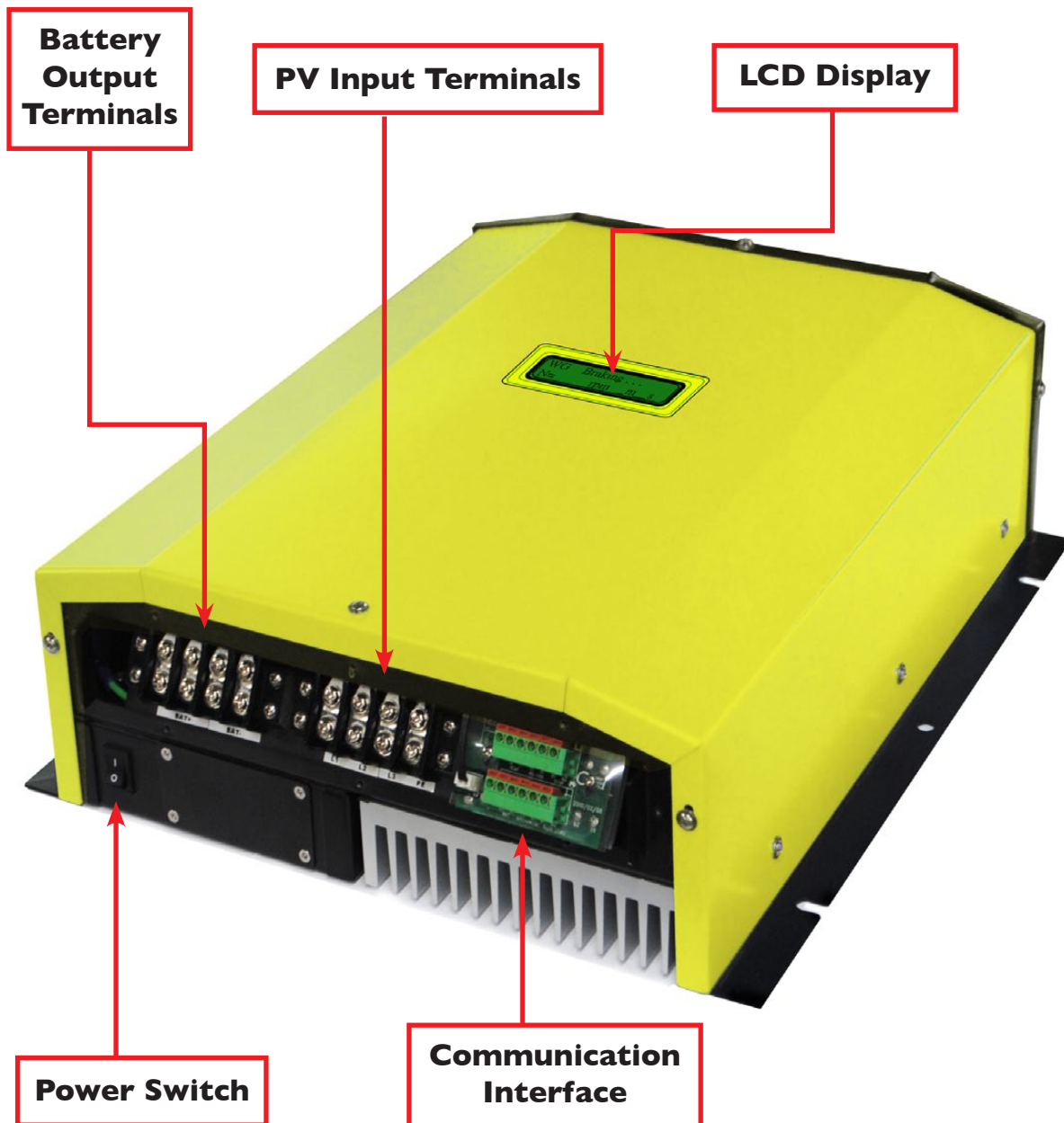
B



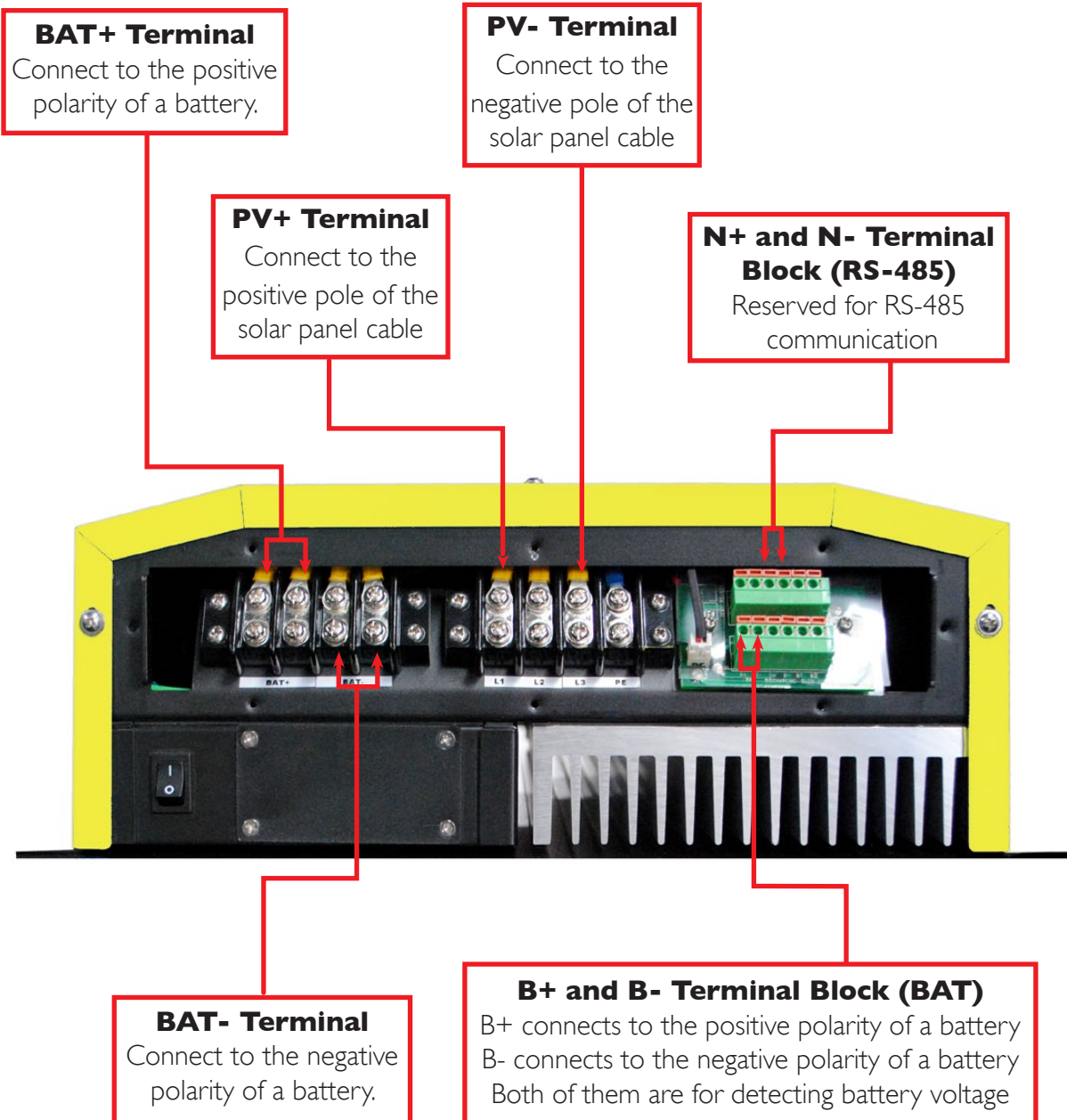
C

INSTALLATION

Controller Interface



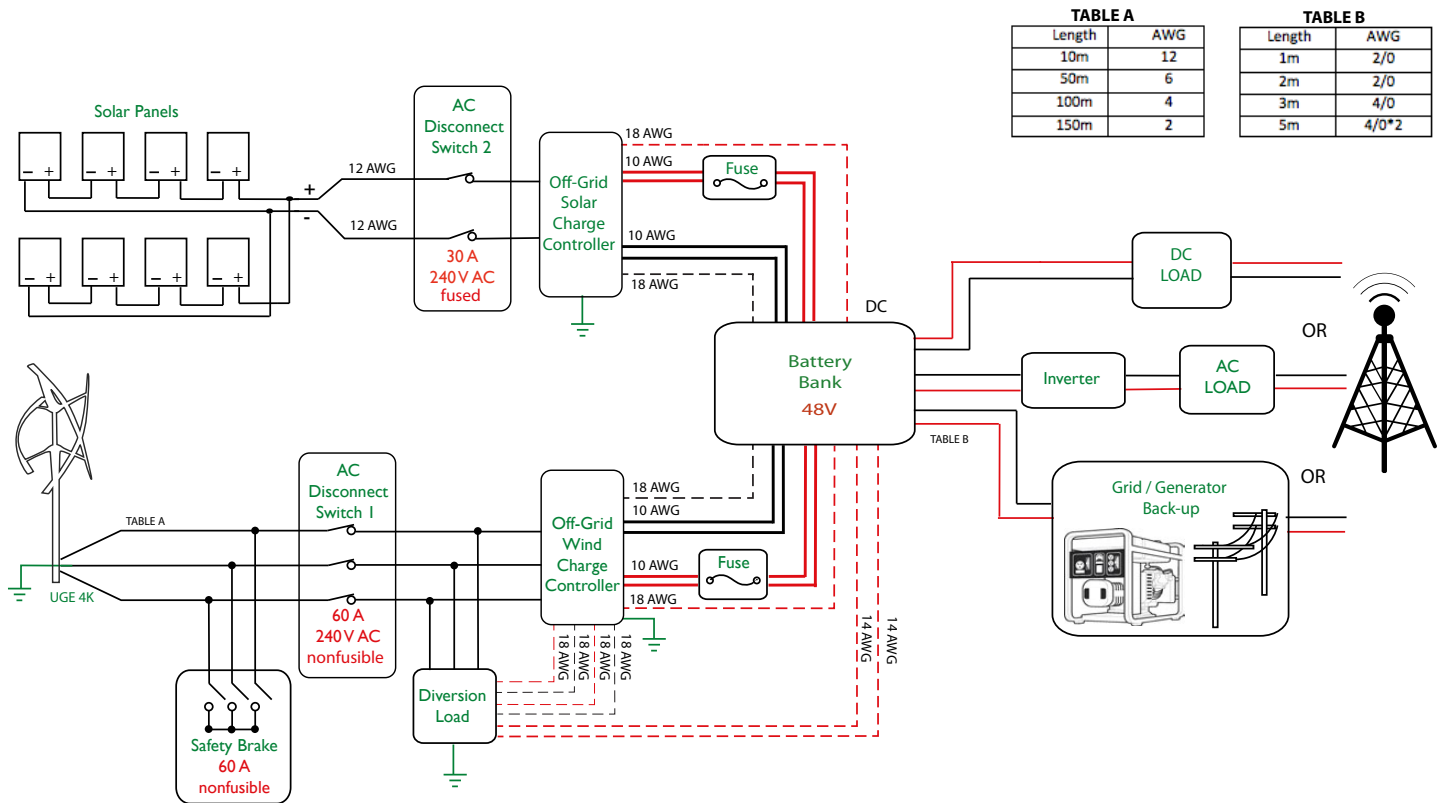
INSTALLATION




WIRING DIAGRAM

Electrical System Overview

An example wiring diagram is shown below. Detailed wiring diagrams are available from the UGE website or your UGE Partner to be used for installation.



WIRING INSTRUCTIONS

 ***This machine includes components carrying high voltage electricity that could potentially cause serious personal injury or even loss of life. The controller shall only be installed by a qualified professional such as a licensed Electrician or UGE distributor. The wiring of the controller shall meet the requirements of the NEC or the local electrical code.***

 ***Before starting installation, please make sure the input and output power both are disconnected to avoid electrical shock.***

1. Ground the controller enclosure by connecting a wire from the grounding pin to an earth ground.
2. Verify the voltage of the batteries is within the normal operating range for the controller per the specs on page 5.
3. Connect Battery cables **Red 10AWG (2x)** from charge controller BAT+ to battery positive pole and Black 10AWG (2x) from charge controller BAT- to battery negative pole. It is suggested that a 100A switch be added.

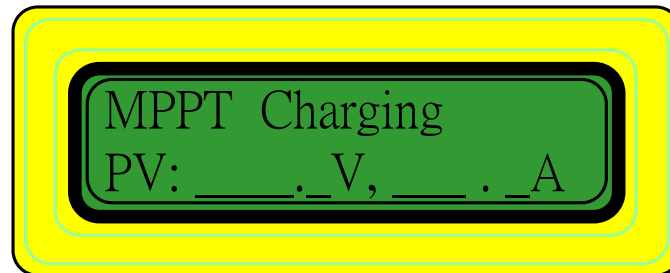
 ***The cable connecting to the battery should not be longer than 5 meters [16' – 4"].***

4. Connect battery voltage sensing cables **Red 18AWG** and Black 18AWG from the B+ and B- directly to the positive and negative output points of the battery bank respectively (Power-charging cable loop and sensing loop must be separated).

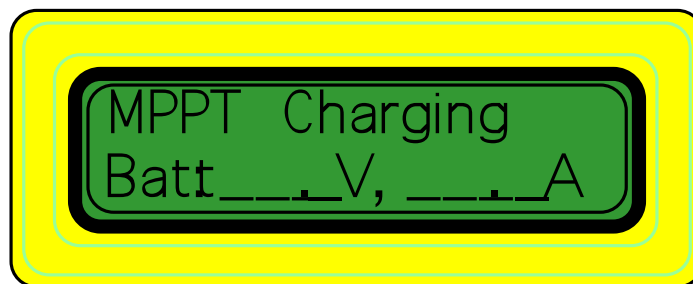
 ***Take care to ensure that the battery polarity is correct.***

5. Connect the positive pole and negative pole solar panel output cables 12AWG (**Red/ Black**) to the PV+ and PV- terminals respectively. It is suggested that a 40A switch be added.
6. Verify again that the battery voltage is normal and that the battery voltage sensing cables are properly connected, then start the Charge Controller.
7. Verify that the LCD is working and the battery voltage indicated is correct.
8. Observe the status of charging the batteries on the LCD screen and verify that the batteries are being charged.

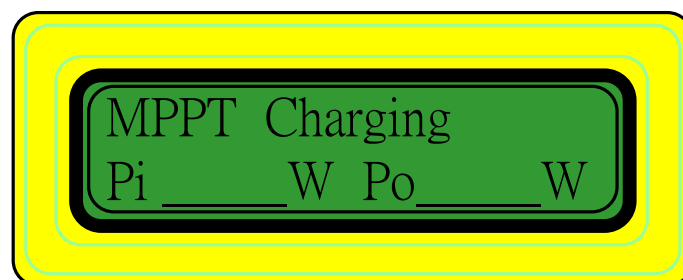
LCD DISPLAY



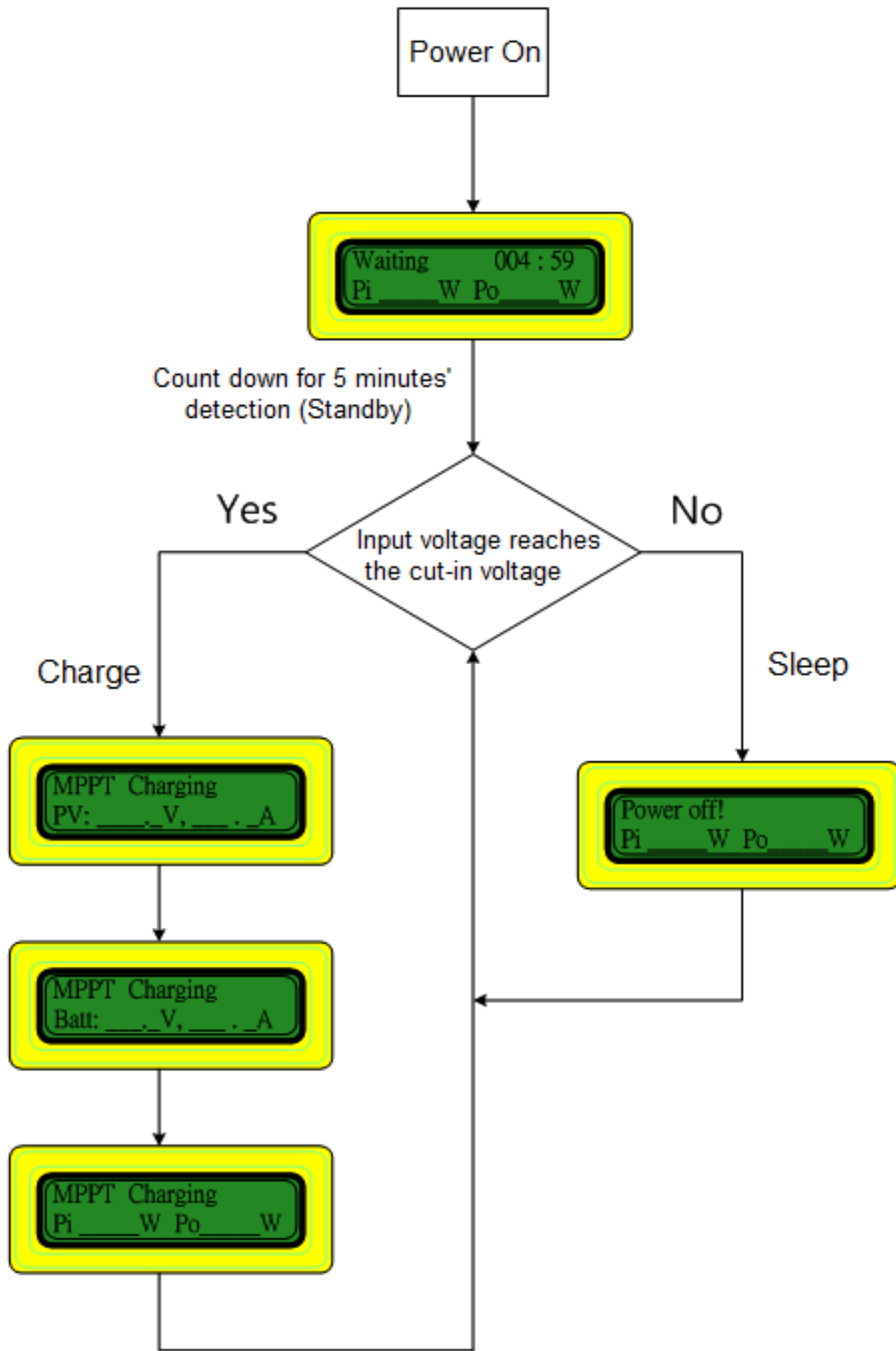
Input voltage and current from PV panels



Battery voltage and charging current



Power input and power output



LCD Display Operating

OPERATION & MAINTENANCE

1. The charge controller only requires little maintenance if it is used properly. Please periodically clean the controller surface with wet cloth.
2. This charge controller is designed to automatically protect the battery when the battery is fully charged – without performing the MPPT.
3. Avoid over discharging the battery to prolong the battery life.
4. Keep the solar panel clean and well maintained.
5. If the controller is behaving abnormally or displaying an error on the LCD screen, please break off the input from the solar panel immediately, then break off the battery; do not start the charge controller again until you have contacted your local dealer or UGE representative and the problem has been resolved.

NOTES



TECHNICAL SUPPORT

If your product requires troubleshooting or warranty service, contact your merchant. If you are unable to contact your merchant, or the merchant is unable to provide service, contact UGE directly at:

Urban Green Energy

330 West 38th Street
Suite 1103
New York, NY 10018

Tech. Support Phone: +1 (917) 720-5685
Email: techsupport@urbangreenenergy.com

This manual is an adaptation of the Power General installation manual for this product and is meant to be used as a guideline only. For specific details, refer to the Power General manual. A certified electrician or the project electrician is responsible for verifying that the controller installation meets local electrical code. UGE provides this manual as a guideline and is not responsible for any errors which may occur due to the use of this manual.