

eddy *gt* Off-Grid Controller

OWNER'S MANUAL



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SHIPPING LIST

Please check if all parts are included in the shipping package as listed below:

- I UGE-1K-OGC
- I DIVERSION LOAD



INTRODUCTION

This owner's manual describes the operation of the **Urban Green Energy** (UGE) 1kW Off-Grid Controller.

Designed for use with the eddyGT turbine, the function of the controller is to take the variable 3-phase AC output from a permanent magnet generator and convert it to a stable 24V DC output to charge a battery bank. The controller also manages the turbine so that it performs safely and optimally.

FEATURES

Solid-state Pulse Width Modulated (PWM) charging process to maximize system performance and increase battery life.

Multi-color LED indicators with easy to read mode/status labels.

Over-charge protection, short-circuit protection, pole-confusion protection and automatic diversion load function.

Indoor-type, powder-coated enclosure, wall mountable.

Meets National Electrical Code (NEC) and other international controller specifications.

Diversion Load included.

2 year limited warranty.

SPECIFICATIONS

Applicable Battery	Low maintenance sealed lead acid battery
Battery Charging Methodology	Pulse Width Modulation (PWM)
Voltage Configurations	24V DC
LED Indicator	Battery status, wind generator status, diversion load status
Battery Over-charging Protection Voltage	28.2-29 V
Charging Loop Voltage Drop	≤5%
No-load Loss	<1%
Specified Temperature Range	-40 °C to +50 °C (40 °F to 122 °F)
Dimensions	Controller: 322.5X242X148 mm (13X9.5X5.8 in) Diversion Load: 412X172X150 mm (16.22X6.77X5.9 in)
Weight	Controller: 3.2 kg (7 lb) Diversion Load: 3 kg (6.6 lb)

DRAWINGS

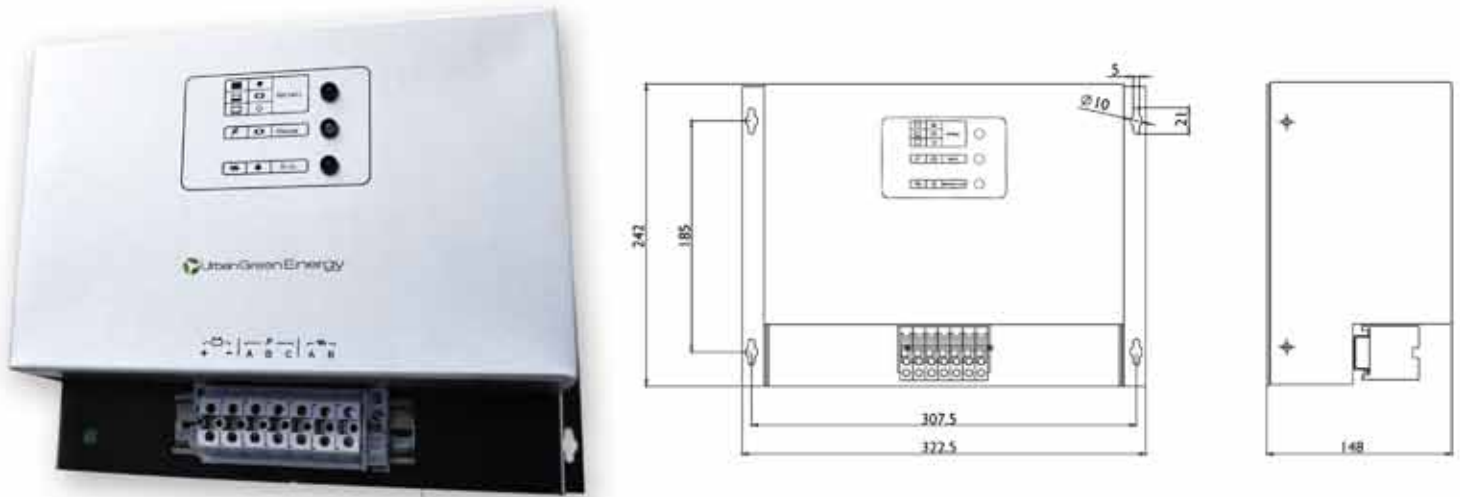


Fig. 1: UGE-1K-OGC 24V dimensions (all units in mm)

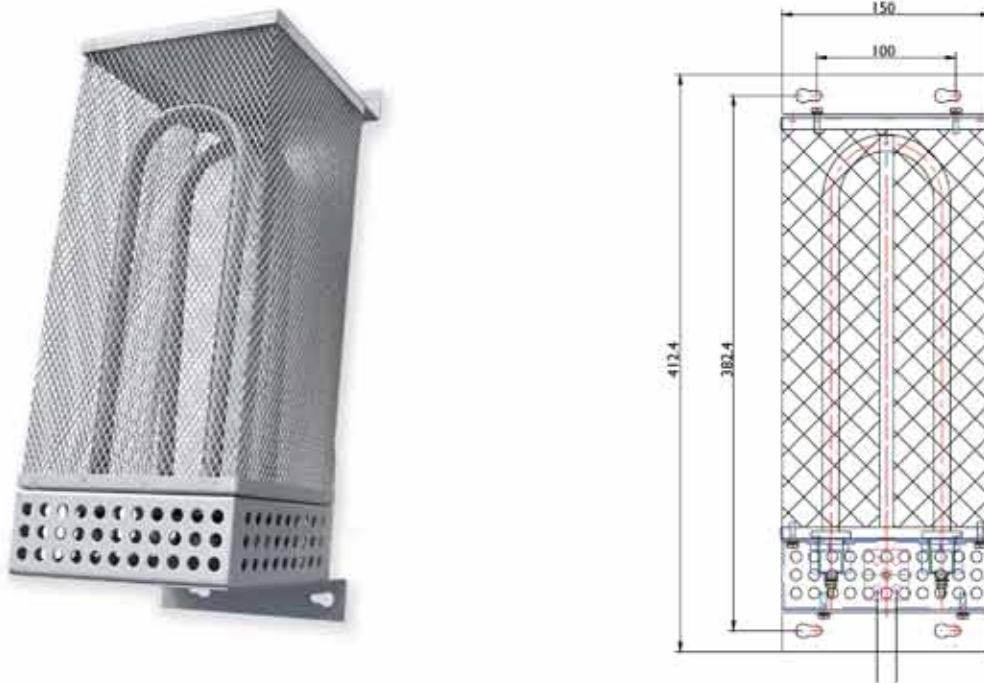


Fig. 2: 24V Controller Diversion Load dimensions.

DRAWINGS

Use the following charts/diagrams to identify the functions of the controller components.

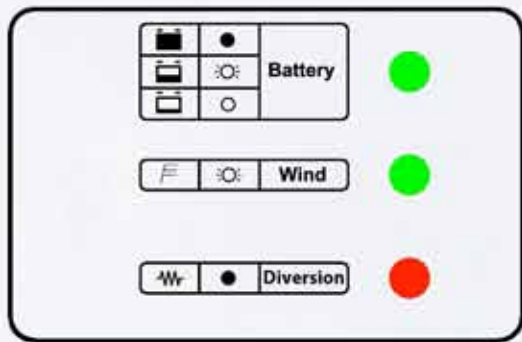


Fig. 5: UGE-1K-OGC LED indicator panel

INDICATOR	DESCRIPTION
BATTERY	
Normal	Green light on
Low voltage	Green light flashing
Abnormal	Green light off
WIND GENERATOR	
Power generation	Green light flashing
DIVERSION LOAD	
Over-voltage	Red light on
	Diversion Load on

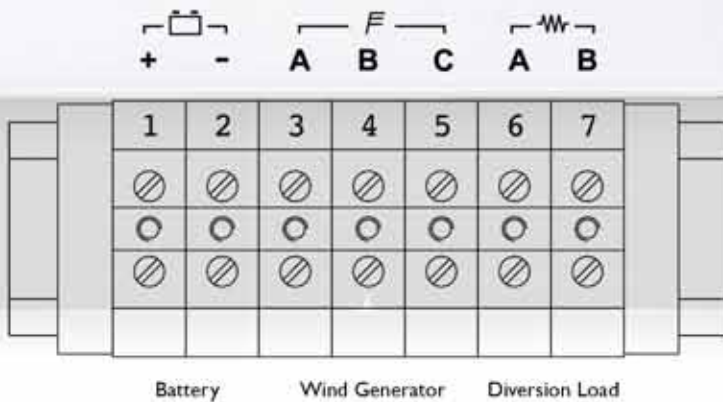














Fig. 6: UGE-1K-OGC terminal definition

PRE-INSTALLATION

WARNING:

READ THROUGH THE FOLLOWING PRE-INSTALLATION INSTRUCTIONS BEFORE PROCEEDING TO SETUP THE UGE-1K-OGC

-  **Do not** install the controller in gusty weather conditions;
-  The controller should be wall mounted;
-  **Do not** connect the plus and minus pole of the battery in reverse;
-  The loads **cannot** exceed the rated power or rated current;
-  Follow the wire sizing guide provided in the **wire connection diagram** (Fig. 7);
-  Connect the wires **by following the wire connection diagram** in this manual (Fig. 7);
-  **Always** use the controller in accompany with the supported diversion loads;
-  The wires need to be fixed tightly to prevent any possibility of short circuit of the loose wires;
-  The diversion load **cannot** be covered by other items and cannot be placed within 3 m (10 ft) of any flammable and explosive items;
-  When the wind speed is high, **the temperature of the Diversion Load will be high;**
-  Choose an appropriate installation place and method. The UGE-1K-OGC should be installed indoors or in places that avoid direct sunlight, rain and snow and has good ventilation;
-  Check the operating status of the controller and diversion load box regularly and fix any problems in a timely fashion. See back cover for Technical Support information.

INSTALLATION

THE FOLLOWING SECTION PROVIDES STEP BY STEP INSTRUCTIONS ON HOW TO INSTALL THE UGE-1K-OGC WITH THE eddyGT TURBINE.

PLACE THE TURBINE AND BATTERIES IN A DRY LOCATION.

STEP 1. Mount the UGE-1k-OGC controller and diversion load vertically on a wall, this mounting position is necessary to provide adequate heat transfer;



CAUTION:

• THE CONTROLLER MUST BE MOUNTED WITHIN 1.5 METERS (5 FEET) OF THE DIVERSION LOAD DUE TO THE PRECUT WIRE LENGTH.

• DO NOT MOUNT THE DIVERSION LOAD WITHIN 3 METERS (10 FEET) OF FLAMMABLE MATERIALS OR NEAR HEAT SENSITIVE COMPONENTS.

STEP 2. Connect the controller to the diversion loads.

STEP 3. Connect the controller to the battery bank.



CAUTION:

• USE CAUTION WHEN CONNECTING THE BATTERY LEADS TO AVOID SHORTING THEM TOGETHER.

• CORRECT POLARITY MUST BE OBSERVED WHEN CONNECTING THE BATTERY CABLES.

• CONNECT THE CONTROLLER TO THE BATTERY BANKS BEFORE CONNECTING THE WIND GENERATOR TO THE CONTROLLER.

STEP 4. Connect the three wires from the wind generator to the controller:

NOTE:

ORDER OF THE WIRES IS NOT IMPORTANT; ANY WIRE FROM THE WIND GENERATOR CAN BE INSTALLED IN ANY OF WIND GENERATOR INPUT TERMINALS ON THE CONTROLLER.

STEP 5. Mount the safety switch next to the UGE-1K-OGC. The safety switch should be connected in parallel with the three transmission wires between the wind generator and the UGE-1K-OGC. The brake switch operates simply by shorting all three wires together to generate braking torque.

THE BRAKE MUST BE APPLIED BEFORE ALL MAINTENANCE PROCEDURES WITH THE TURBINE. ALLOWING YOUR TURBINE TO FREE SPIN WITHOUT A BRAKE CAN CAUSE SEVERE DAMAGE TO YOUR TURBINE, AND WILL VOID YOUR WARRANTY.

WIRING DIAGRAM

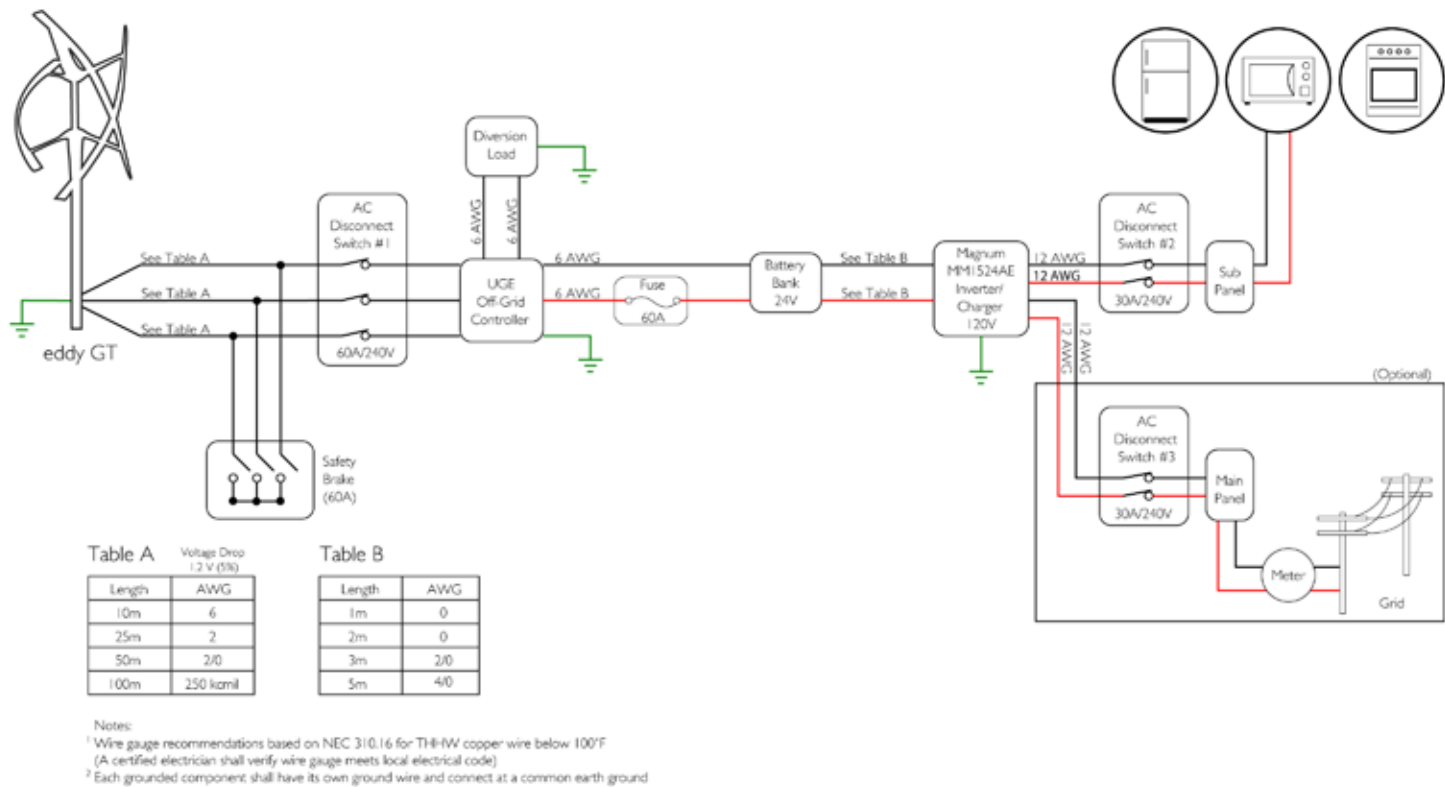


Fig. 7: UGE-1K-OGC and wire connection diagram

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 Urban Green Energy directly at:

Urban Green Energy

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