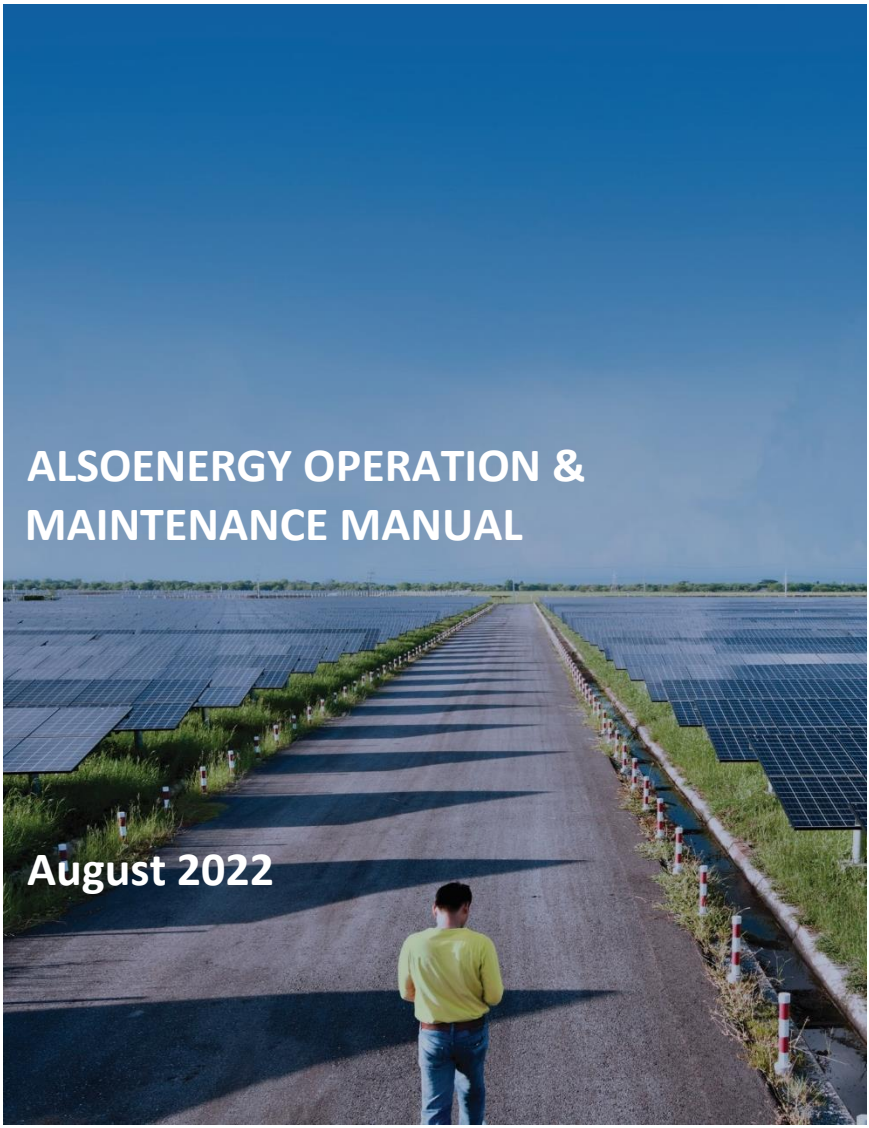
AlsoEnergy

ALSOENERGY OPERATION & MAINTENANCE MANUAL



August 2022

Revision History

Revision	Date	Author	Comments
1	February 2022	Engineering	Creation of Document
2	August 2022	Engineering	Title Update

Limitation of Liability

AlsoEnergy™ Inc. (“AE”) reserves the right to make changes to its products and/or their specifications without notice. Obtain the latest version of the device specifications to ensure the most current information is available to the customer.

AE assumes no liability for applications assistance, customer’s system design, or infringement of patentsor copyrights of third parties by/or arising from the use of AE’s devices.

AE SHALL NOT BE LIABLE FOR CONSEQUENTIAL DAMAGES SUSTAINED IN CONNECTION WITH AE PRODUCTS, EXCEPT TO THE EXTENT PROHIBITED BY APPLICABLE LAW. FURTHERMORE, AE NEITHER ALLOWS NOR AUTHORIZES ANY OTHER PERSON TO ASSUME FOR IT ANY SUCH OBLIGATION OR LIABILITY.

Although the information contained in this document is believed to be accurate, AE assumes no responsibility for any errors which may exist in this publication.

Installation and Maintenance Personnel

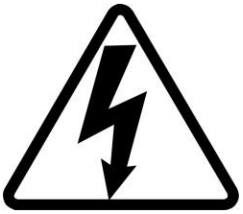
Installation and maintenance of the communications enclosure should only be performed by qualified, competent personnel who have appropriate training and experience with high voltage and current devices. The communications enclosure must be installed in accordance with all local and national electrical safety codes.

WARNING

Failure to observe the following may result in severe injury or death:

- Keep these instructions.
- There are no user-serviceable parts inside. Refer service to an authorized service person.
- During normal operation of this device, hazardous voltages are present on the input terminals of the devices and throughout the connected power lines. With their primary circuit energized, current transformers (CTs) may generate a high voltage when their secondary windings are open. Follow standard safety precautions while performing any installation or service work (i.e., remove line/ PT fuses, short CT secondaries, disconnect power whenever adjusting terminations).

- This product must be used in accordance with the instructions in this manual. Otherwise, the product may not perform as expected and can cause hazards to the user.



Danger

Line voltages up to 600 VRMS are present on the input terminals of the device and throughout the connected line circuits during normal operation. These voltages may cause severe injury or death. Installation and servicing should be performed only by qualified, properly trained personnel.

CSA - C22 Statement

This product meets the requirements of Can/CSA-C22.2 no. 61010-1, second edition, including Amendment 1, or a later version of the same standard incorporating the same level of testing requirements.

FCC Statement

This device is classified as a Class A digital device.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operations.

Contents

1 General

1.1 Electrical Wiring

Because of possible electrical shock or fire hazards, the maintenance of this equipment should only be made by qualified personnel in compliance with all local and national applicable electrical codes and standards.

1.2 Documentation

This manual is meant to cover the operation and maintenance of standard installations. AlsoEnergy supports many configurations and specific installations. If you have any questions, please contact technical support at **866-303-5668**.

1.3 Disclosure

This publication contains information proprietary to AlsoEnergy. No part of this publication may be reproduced in any form without prior written consent from AlsoEnergy.

1.4 Warranty

The AlsoEnergy communications enclosure is warranted to the original purchaser against defective material and workmanship. During the warranty period, AlsoEnergy will repair or replace, at its option, all defective equipment that is returned freight prepaid. There will be no charge for repair provided there is no evidence that the equipment has been mishandled or abused. If the equipment is found to be in proper working order, a service fee

will be charged. The complete terms and conditions of the warranty are located at www.alsoenergy.com.

2 Maintenance

Make sure power is not active before testing wire connections, including de-energizing the power source, performing a live-dead test, and following any on-site Lockout-Tagout procedures. Disconnecting an energized wire can lead to dangerous electric shock resulting in injury or death.

2.1 Maintenance Schedule

Item	Monthly	Quarterly	Annually
Visual Inspection of Enclosure		X	
Remove Dirt and Dust		X	
Desiccant Pack		X	
Vent Cleaning	X		
Wire Tug Test			X
Circuit Breaker and Fuses		X	

2.2 Recommended Tools and Materials

- Network Cable Tester
- Wire Stripper/Cutter
- Small Flathead Screwdriver
- Large Flathead Screwdriver
- AC/DC Multimeter

2.3 Information to Gather Before Site Visit

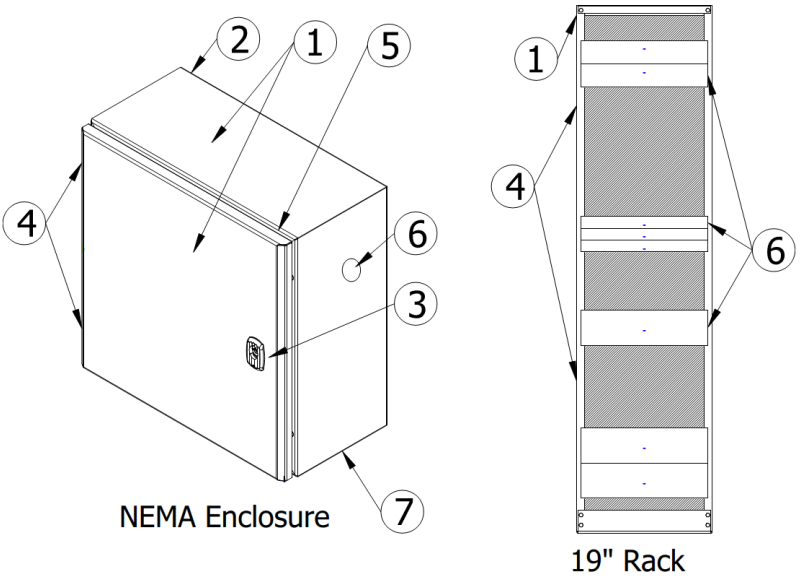
2.3.1 Sensor Recalibration Details

- Gather calibration certificates for the site's meters and sensors.
- Check if recalibration would be required per certificate information.
- **AlsoEnergy does not perform device calibration services.** Contact the Original Equipment Manufacturer for details on getting devices recalibrated.

2.3.2 Determine Maintenance Suggested by OEM

- Checking device manuals, make note of any suggested maintenance that can be performed on site in addition to the items listed below.
- Determine if scheduled replacement of components such as batteries and fuses is due.

2.4 Maintenance Items



2.4.1 Visual Inspection of Enclosure

1. Look for damage and wear to the exterior of the enclosure such as scratches, dents, burns, and rust.
    - Look for evidence of paint chipping on the enclosure.
        - Repaint damaged areas with suitable outdoor-rated paint.
    - Verify that the warning labels are not faded.
        - Replace warning labels if they are faded or otherwise not readable.
2. Check that the mounting hardware is still tightly attached to the mounting surface and is still in good condition.
3. Verify no damage to the locking mechanism and open the enclosure.
4. Check hinges to make sure they open smoothly.

5. Inspect the enclosure seal and confirm that it is still intact with no rips or tears and that it still provides a tight seal.
6. Clean vents (if present)
    - If the enclosure houses a UPS system with battery backup, check the enclosure vents for any blockages and clear them.
    - For fan-cooled devices such as servers, blow dust out of the device vents with compressed air.

7. Check that penetrations at the bottom of the enclosure are still tight.
    - All penetrations should be through the bottom of the enclosure. If penetrations are made elsewhere, their seals may fail over time. If such penetrations have been made, replace the enclosure and repenetrate using the bottom of the enclosure.

8. Check desiccant pack indicator cards.
    - Replace the desiccant pack when the humidity indicator card shows 40% humidity or higher.

9. Look for evidence of water ingress.
    - Look for moisture present on devices and the interior surfaces of the enclosure, particularly in the form of condensation.
    - Look for signs of rust and corrosion on wire connections, battery terminals, and the enclosure box.


10. Look for visible damage to any devices, wires, plates, etc. within the enclosure, as well as signs of overheating such as discoloration or flaking of insulation and/or metal parts.
    - If any components are damaged, have them replaced.
    - If signs of overheating are found, determine the cause. Correct the problem, replacing components as required.
    - An infrared camera may be used to see hot spots that have not yet caused equipment failure.
11. Check LED patterns
    - Scan all devices that have LEDs which indicate proper performance.
        - Verify Power is lit for all available devices.
        - Verify LEDs on connected NICs and Ethernet switches show both a persistent connection and flashing indicating data transfer.

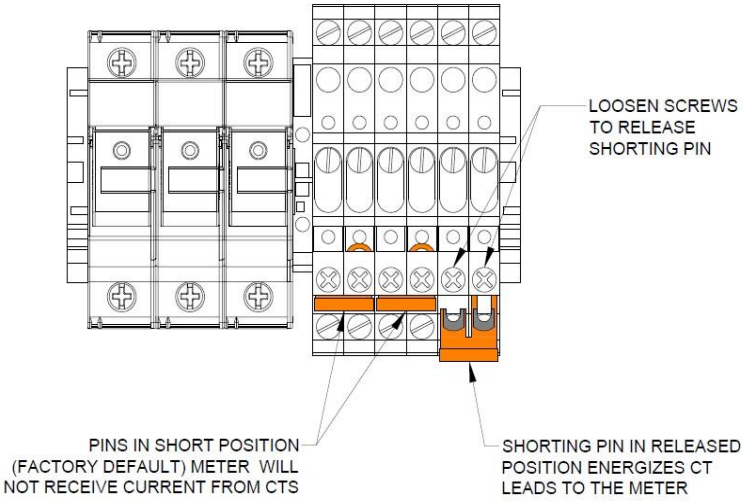
- Verify cellular modems show a network connection and strong signal. If the signal LED indicates low strength, try to relocate the antenna to a more favorable location.
- See device's operations manual for more specific information.

2.4.2 Remove Dirt and Dust Buildup

- Wipe down surfaces with a dry microfiber cloth to remove dust buildup. Use canned air to clean any fans. Look for openings in the enclosure that would have allowed for dust and dirt to enter.
    - Replace enclosure if tears or cracks are found.

2.4.3 Perform a Tug Test on Wires

- **Make sure power is not active before testing wire connections, including de-energizing the power source, performing a live-dead test, and following any on-site Lockout-Tagout procedures. Disconnecting an energized wire can lead to dangerous electric shock resulting in injury or death.**
- Before testing the CT wires, it is **necessary** to remove the high current path (primary side of the CT) from the working area. This may be accomplished by shorting the contacts using the orange shorting pins as shown in the diagram below. **Note that this only serves to de-energize the wiring through the meter from the interface block. If the metered feeder is energized, then the CT leads are as well. Disconnecting an energized CT can lead to dangerous electric shock resulting in injury or death.** Always de-energize the metered circuit before servicing CTs or CT leads using on-site Lockout-Tagout procedures.



- Visually check all conductors and connections to be sure that they are clean and secure.
- Lightly pull on each wire at its terminal location to verify it still has a secure connection.
- If a tug results in a wire coming loose, land it back in the correct terminal and tightly fasten it.
- Perform another tug test to verify the new connection.

2.4.4 Test Circuit Breakers and Fuse Holders

- **Make sure power is not active before testing wire connections, including de-energizing the source, performing a live-dead test, and following any on-site Lockout-Tagout procedures.**
- Operate each circuit breaker and fuse holder to ensure that all mechanisms are free and in proper working order.

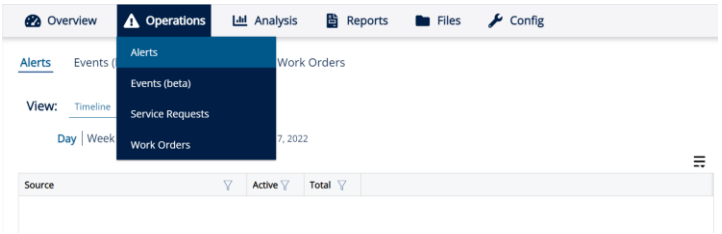
- Remove fuses from fuse holders to inspect and test for continuity. Replace as necessary.

2.4.5 Weather Sensor Maintenance

- Check the tightness of all mounting bolts. Tighten any that feel loose.
- Verify pyranometer levels.
    - GHI and Albedo pyranometers must be completely level in all directions.
    - POA and BPOA pyranometers must be mounted at the same angle as the solar modules.
- Clean pyranometer domes using distilled water and a microfiber cloth. Inspect the domes for damage.
- Check that BoM temperature sensors are still strongly affixed to the backs of their solar modules and are located in the center of a module cell.
- Remove debris from rain gauge sensors.

2.4.6 PowerTrack Alerts

- Log into PowerTrack and navigate to the site's Operations > Alerts screen.
- If there are any unresolved Alerts, see if any recommendations in the Title field can be taken while on site (ex: check wiring).
- If a device is not reporting data to PowerTrack, investigate the device for evidence of electrical or mechanical failures.



AlsoEnergy SupportTrack

Direct access 7 days a week to best-in-class support resources and specialists

Open a case at home.alsoenergy.com/support

For onsite appointments:

If you know you are going to be onsite, it's best to schedule an appointment beforehand with our call center support staff.

Use our easy scheduling tool at alsoenergysupport.setmore.com/

If you would like to schedule a site visit from an AlsoEnergy Field Technician, please send an email to onsiteservice@alsoenergy.com

For phone assistance:

Contact us at **866-303-5668**

Weekdays: 8 am – 9 pm US-EST

Weekends: 11 am – 7 pm US-EST

Software Training:

For video tutorials, login to PowerTrack and go to the Help menu.

Request 1-to-1 training: alsoenergytraining.setmore.com

Explore the self-guided options with the Software Onboarding Course kb.alsoenergy.com/article.php?id=168&oid=128

NOTE: Use your PowerTrack username and password to login to the KB.